

**Participation Of Registered Nurses**

**In Continuing Education**

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## **Abstract**

This correlational study investigated the psychological types, learning style preferences, readiness for self-directed learning, demographic and continuing education participation data of 154 registered nurses at two different Southern Ontario hospitals. One hospital was a large tertiary care university-affiliated teaching centre (Cityview) and the other was a smaller secondary care community hospital (Waterview). The instruments used in the study were the PET Type Check, Kolb's Learning Style Inventory, the Self-Directed Readiness Scale (SDLRS), and a Nursing Survey developed by the researcher. Descriptive statistics, cross-tabulations and correlational analyses were calculated. The most common psychological types identified among this sample of nurses were extraverted thinking, introverted intuitive and extraverted intuitive. There were no significant differences between the two hospitals.

The accommodator learning style was preferred overall, with more nurses at Waterview Hospital preferring the diverger learning style, and more nurses at Cityview Hospital preferring the accommodator learning style.

The majority of nurses scored in the average and above average categories on the SDLRS, indicating that they perceive themselves as ready to engage in self-directed learning. At Cityview Hospital there were more nurses in the average and high readiness categories, whereas at Waterview Hospital more nurses scored in the below average category.

No significant correlations were found for learning style with psychological type, or for learning style with SDLRS scores.

A positive correlation was found to exist between SDLRS scores and each of the psychological types extraverted feelings, extraverted thinking, and introverted intuitive.

The only significant correlation for psychological type and continuing education activity was a positive correlation between extraverted thinking types and participation in informal discussion or study groups.

Positive correlations were found for SDLRS scores with each of the following continuing education activities; number of hours per month spent reading journals; journal reading; attendance at credit courses; watching videos; using reference texts.

Further details of the results are included as well as a discussion of the findings and implications for future research.

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## Table of Contents

	Page
Abstract .....	ii
Acknowledgements .....	iv
List of Tables .....	ix
 CHAPTER ONE: AN INTRODUCTION TO THE STUDY .....	 1
Background of the Problem .....	1
Statement of the Problem Situation .....	2
Purpose of the Study .....	4
Rationale .....	4
Importance of the Study .....	5
Definition of Terms .....	5
Assumptions .....	7
About the Researcher .....	7
Outline of the Remainder of the Document .....	8
 CHAPTER TWO: REVIEW OF RELATED LITERATURE .....	 9
Introduction .....	9
Adult Education .....	9
Who is an Adult? .....	11
What is Education? .....	11
Definition of Adult Education .....	12
Continuing Education in Nursing .....	16
Motivation .....	17

Voluntary versus Mandatory Continuing Nursing Education .....	21
Effectiveness of Continuing Education in Nursing .....	22
Self-Directed Learning .....	23
Learning Styles .....	27
Psychological Types .....	31
The PET Type Check .....	36
 CHAPTER THREE: METHODOLOGY .....	 39
The Research Questions .....	39
The Sample Population .....	39
Instrumentation .....	40
Procedure .....	46
Statistical Analysis .....	47
Limitations of the Study .....	48
 CHAPTER FOUR: RESEARCH FINDINGS .....	 50
Characteristics of the Sample .....	51
Participation Rates in Continuing Education .....	59
The Self-Directed Learning Readiness Scale .....	63
The Kolb Learning Style Inventory .....	65
The PET Type Check .....	67
Crosstabulations with Demographic Variables .....	70
Results of Correlational Analyses .....	73
Research Questions .....	79

Crosstabulations with Continuing Education, SDLRS, Psychological Type and Learning Style .....	79
Correlations with Continuing Education, SDLRS, Psychological Type, and Learning Style. ....	86
CHAPTER FIVE: DISCUSSION OF RESEARCH FINDINGS .....	91
Response Rate .....	91
Discussion of Characteristics of the Sample .....	91
Significant Correlations Among Demographic Data and Continuing Education Activities .....	94
Discussion of Findings Related to the Research Questions .....	99
Relationships Among the Variables of Psychological Type, Learning Style, and Self-Directed Learning Readiness .....	106
Summary .....	109
CHAPTER SIX: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS .....	110
Implications .....	110
Recommendations .....	114
Conclusions .....	116
References .....	118
Bibliography .....	128
Appendix A - Letters and Nursing Survey .....	136



## List of Tables

	Page
Table 1    Mean Age, Number of Years Worked in Nursing, and Number of Years in Current Area of Clinical Practice .....	52
Table 2    Frequency Distribution for Marital Status .....	53
Table 3    Frequency Distribution for Employment Status .....	54
Table 4    Basic Nursing Preparation .....	56
Table 5    Frequency Distribution of Highest Degrees Held by Respondents .....	57
Table 6    Membership in Professional Organizations .....	60
Table 7    Journal Reading Habits of Nurses Number of Hours per Month Spent Reading Nursing Journals .....	61
Table 8    Summary of Participation in Continuing Education Activities .....	62
Table 9    Frequency Distribution of Scores on the SDLRS .....	64
Table 10   Descriptive Statistics, Learning Styles .....	66
Table 11   Mean and Standard Deviation for the Psychological Type Variables .....	68
Table 12   Frequency Distribution for Dominant and Auxiliary Functions .....	69
Table 13   Differences in SDLRS Scores Between Hospitals .....	71
Table 14   Differences in Learning Style Preferences Between Hospitals .....	72
Table 15   Correlation Matrix for Demographic Data and Continuing Education Activities .....	75
Table 16   Correlation Matrix for Learning Styles with Psychological Type .....	76
Table 17   Correlation Matrix for Learning Style with Self-Directed Learning Readiness .....	77

Table 18	Correlation Matrix for Psychological Type with Self-Directed Learning Readiness .....	78
Table 19	Differences in SDLRS Scores Between Those Working On or Not Working On a Course .....	81
Table 20	Differences in SDLRS Scores Between Journal Readers and Nonreaders .....	82
Table 21	Comparison of SDLRS Scores for Participants and Nonparticipants in Credit Courses .....	83
Table 22	Differences in SDLRS Scores as a Function of Watching Videos .....	84
Table 23	SDLRS Scores of Reference Text Users and Nonusers Reading Reference Texts .....	85
Table 24	Correlation Matrix for Learning Style with Demographic Data and Continuing Education .....	88
Table 25	Correlation Matrix for Psychological Type with Continuing Education Activity .....	89
Table 26	Correlation Matrix for SDLRS Scores with Demographic Data and Continuing Education Activities .....	90

## **CHAPTER ONE: AN INTRODUCTION TO THE STUDY**

Advanced technologies, new techniques and medications, an aging population, knowledgeable patients, and more acutely ill hospitalized patients are some of the reasons why Registered Nurses (RNs) today must keep abreast of changes in health care. Registered Nurses comprise the largest segment of health care professionals, therefore, changes and advances in the delivery of health care markedly affect these front-line workers in their day-to-day duties and responsibilities. In order to maintain their competency, it is important that they acquire the appropriate knowledge and skills that accompany such changes. Continuing education for nurses is therefore essential.

### **Background of the Problem**

While research has shown that many nurses believe that their basic education will suffice for a lifetime of practice (Dolphin, 1983; Miller & Rea, 1977, ), such an attitude in today's health care system could be detrimental to the nurse functioning adequately. Knowles (1975) suggests that the main purpose of education is to develop the skills of inquiry because the half-life of many facts and skills may be ten years or less (p. 15). Darkenwald and Merriam (1982) stated that the half-life of knowledge of any professional is five years (p. 4). Thus, of everything learned in nursing school, only one-half of it will be useful and current five years later. With such a rapid rate of advancement in knowledge in the field of health care, it is evident that nurses and other health care professionals must increase their knowledge of new and current treatments, medications, and techniques in order to keep abreast of the changes and advances they face in carrying out their role. This requires a great deal of self-direction and commitment. Some of the knowledge required can be gained "on the job" through the sharing of information among health care professionals, but other areas require a personal commitment of time and resources to self-instruction and learning. How this is done may vary

from one individual to another, yet the end result must be the same -- that registered nurses maintain their competency in order to provide professional and quality nursing care.

Given the importance of continuing education, an understanding of some of the factors that may be associated with nurses' continuing education efforts would be beneficial in planning and delivering programs.

The College of Nurses of Ontario (CNO) and the Registered Nurses Association of Ontario (RNAO) both advocate that the nurse is responsible for his or her own continuing education. The CNO's position is that the registrant is responsible for achieving and maintaining professional competence. The College elaborates by stating that "by using a variety of resources and selecting appropriate activities, each registrant is personally responsible for maintaining and expanding initial competence" (CNO, 1988, p. 7). In addition, the College stresses that participation in continuing education is one manner in which the registrant may further the goals of the profession (CNO, 1988). The College advocates the pursuit of continuing education because quality nursing care will be provided when practice is based upon relevant and current nursing knowledge (CNO, 1992).

Much is known about the differences between participants and nonparticipants in adult education (e.g., age, sex, income, race, educational background), but as yet the information has little predictive or explanatory value. The topic of motivation to engage in continuing education has been addressed in the literature as well.

### **Statement of the Problem Situation**

As the need for continuing education increases for RNs, it is important to identify the characteristics of nurses as learners. Specifically, if it could be determined that a particular psychological or personality type exists among registered nurses, whether they have a preferred learning style, and how much value they place on being self-directed learners, then these factors could be used to plan and deliver appropriate continuing education for nurses.

With health care costs rising and increased use of complex technologies and treatments, nurses must keep up-to-date with these advances in order to possess a high degree of competency. While hospitals provide basic orientation and inservice education, the nurse must rely on her own self-directedness and autonomy to pursue specific information which meets her learning needs and style. While there is abundant room for change in continuing nursing education, it must be purposeful and based on sound knowledge and theory. Thus, if continuing nursing education is to provide nurses with the information they require or the resources they need to obtain that information on their own, programs must be structured to meet the needs of nurses in terms of their information and learning needs, preferred style of learning and the personality types which may influence their learning styles.

Cross (1981) suggested that further study is needed to determine "whether there is a general tendency for people to have a characteristic stance toward learning -- that is, a learning orientation compelling them to seek learning opportunities to grow personally and vocationally" (p. 97). If by this she means a tendency to be a self-directed learner, then this study addresses this issue. Knowing whether nurses have a tendency to be self-directed in their pursuit of knowledge will be useful in program planning and delivery, but additional characteristics of nurses may be equally as useful in such planning for continuing education. As such, if it can be determined how most nurses prefer to learn and the dominant psychological type found among nurses, then planning of continuing education activities can be aimed at their level of self-directedness, their preferred learning style and in a setting and format that attracts and is appropriate for their psychological type. This concept is supported by Merriam and Caffarella (1991) who state that

Adult education is largely a voluntary activity. Providers of adult education need to know who is participating, why they are participating, and what conditions are likely to promote greater participation...knowledge about participation is useful to policy makers and those who provide funding.(p. 62)

Research by Kolb, Rubin & McIntyre (1984) suggested that individuals with specific learning styles are attracted to certain types of work. In other words, he found that most individuals he surveyed in a particular occupation shared a common learning style. This study investigates whether nurses share a common learning style preference, and where any differences exist. This information is useful in planning continuing educational activities for nurses. Likewise, information about the predominant psychological types of nurses can be applied in a similar manner.

Recent legislation, the Regulated Health Professions Act (RHPA), has had an impact on all nurses. Specifically, one component of the legislation mandates the CNO to engage in quality assurance programs to assure the ongoing competence of its practitioners. As a result, the CNO is establishing a system whereby registered nurses will be required to keep track of their continuing education activities as evidence of maintaining their competence. The onus remains on the nurse to assess and identify his or her learning needs and then to seek appropriate information to meet these needs. It is not mandatory continuing education in the sense that a certain number of hours of education must be obtained on an annual basis to ensure license renewal, but it does encourage the nurse to participate in continuing education.

### **Purpose of the Study**

This thesis explores the relationships among psychological type, learning style preferences, readiness for self-directed learning and a number of demographic factors and continuing education activities of registered nurses.

### **Rationale**

Although a great deal of research has been undertaken to identify demographic characteristics of adult learners and specifically registered nurses, little is known about psychological and cognitive factors which may have an impact on how continuing education is

planned and delivered for this group of health care professionals. If trends are identified for characteristics such as learning style, readiness to be a self-directed learner, and for psychological type, educators will have additional valuable information available to assist them in their work.

### **Importance of the Study**

This study is of interest to nurse educators, nurse managers and program planners for continuing nursing education. The results obtained in this study may help educators and managers understand the groups of nurses with whom they work, and provides valuable information for use in planning continuing education activities for these nurses. Although the focus of this study is characteristics of registered nurses, other professional groups may wish to investigate these characteristics and apply the findings to their own professional development program planning.

### **Definition of Terms**

CNO College of Nurses of Ontario. The self-regulating professional body for registered nurses in Ontario. All nurses practising in the province must be registered by the CNO. The College's mandate is to protect the public through the regulation of nursing.

Continuing Education Educational endeavours, either self- or other-directed, taken on by an individual with the purpose of building on existing knowledge and skills.

Continuing Education in Nursing "Continuing nursing education is any planned learning experience which is intended to build on first-level nursing preparation and practice experience. It may take place under the auspices of an educational institution or other educational provider, or be self-organized and directed. It may be credit or noncredit. It is intended to contribute to the enhancement of nursing practice, education, administration, and/or research, and to the fulfilment of individual nurses' professional goals" (Baumgart & Larsen, 1988, p. 366).

Learning Style The characteristic way a learner operates within a learning situation.

Descriptions are based on the learning styles identified by Kolb in the Learning Style Inventory.

Psychological Type A description of an individual's personality type and characteristics based on the work of Jung and identified by the PET Type Check. Individuals are described as extraverted or introverted, as well as by their dominant and auxiliary functions or ways of interacting with the world.

Registered Nurse An individual who has completed either a hospital training program, college diploma or baccalaureate degree in nursing, and who is registered with the College of Nurses of Ontario to practice nursing.

RNAO Registered Nurses Association of Ontario. Exists to provide a forum for the exchange of information and to promote excellence in nursing practice.

(SDL) Self-Directed Learning. A learning activity undertaken by an individual in which he or she identifies a learning need, determines how to obtain the knowledge or skill, engages in any type of formal or informal study and subsequently evaluates his or her own learning.

SDLRS The Self-Directed Learning Readiness Scale. A psychometric quantitative scale used to assess the degree to which individuals perceive themselves to possess certain skills, attitudes and traits associated with readiness to engage in self-directed learning.

Secondary care community hospital A hospital which provides acute and specialized care to patients in the community where it exists. Such hospitals tend to be smaller and offer fewer



specialized services than do teaching hospitals.

Tertiary care university affiliated medical centre A hospital which provides acute and specialized care to patients and which is also affiliated with a university for the purpose of clinical training of health care professionals, specifically student physicians. Often referred to as a teaching hospital.

### **Assumptions**

The following is a list of assumptions or beliefs held by the researcher;

- continuing education is necessary in the nursing profession
- nurses will learn and develop through continuing education
- educators can plan programs based on a knowledge of learner characteristics

### **About the Researcher**

In order to provide information to the reader about the background of the researcher and her beliefs, I will use the first person singular to address this.

I am a registered nurse working in critical care. The majority of my career has been spent in the intensive care setting.

I strongly believe in the value of continuing education. I do not think that it should be mandatory as I believe that the professionalism of nurses should be what stimulates nurses to pursue continuing education in order to remain competent practitioners. In order to provide safe and competent care to our patients, we must continually update our knowledge base. I believe that the onus is on the individual nurse to identify his or her learning needs and to determine how best to meet those needs. I also believe that continuing education specific to one's area of clinical practice is particularly important and should be encouraged and facilitated, and even rewarded to some extent.

I recognize and appreciate the limitations that nurses face in pursuing continuing education. As the mother of a busy toddler, I face many of the same concerns and constraints that challenge other nurses. I recognize that the desire to pursue continuing education must often come from an internal motivation, as more often than not, nurses who obtain additional education and qualifications are not remunerated or do not have their efforts or accomplishments recognized.

It has been my experience through working in critical care settings at both community and teaching hospitals that there is a different atmosphere in each type of hospital with respect to continuing education. In general I have found that continuing education is more widely encouraged and recognized at teaching hospitals. I have also found that nurses in different clinical areas value continuing education to different extents. It was predominantly these observations which led me to consider and investigate other factors which may be associated with the continuing education activities of registered nurses.

I was introduced to the concept of psychological type in my studies at Brock University and found this to be a fascinating topic. I decided to examine psychological types of nurses related to continuing education, then wondered if other factors might also be associated with this. What emerged was the present topic of this thesis.

### **Outline of the Remainder of the Document**

Chapter 2 highlights pertinent literature in adult education, continuing education in nursing, psychological types, learning styles, and self-directed learning. The sample population, methodology and instrumentation which were employed in this study are presented in Chapter 3. Results of the study are presented in Chapter 4 with a discussion of the findings in Chapter 5. Implications of the study and recommendations for future research are explored in Chapter 6.

## **CHAPTER TWO: REVIEW OF THE LITERATURE**

### **Introduction**

This chapter examines literature on the topics of adult education, continuing education in nursing, self-directed learning, learning styles, and psychological types. Studies pertaining to these topics in nursing education are reviewed, and gaps in the literature are identified, thus leading to the present study.

### **Adult Education**

The term "adult education" is commonly used in the 1990s but continues to have several meanings or connotations. The history of adult education can be traced back to the early 18th century, however, it was only in 1926 with the founding of the American Association of Adult Education that adult education came to be recognized as a field of professional practice in the United States (Darkenwald & Merriam, 1982).

The particular philosophical orientations which researchers and practitioners adopt influence their perception of adult education. For example, behaviourists would define adult education in terms of changes brought about by the educational process. The notion of raising consciousness of social and political beliefs in one's culture would be an essential component of the definition of adult education for reformist adult educators. Those with a humanist or existential orientation would define adult education in terms of growth and development (Darkenwald & Merriam, 1982).

In 1926, Eduard Lindeman published The Meaning of Adult Education. In this book he emphasized the importance of experience, discussed the value of lifelong learning and argued that adults are capable of learning beyond their years of compulsory education in early

A number of factors have influenced the increasing popularity of adult education in recent years. We live in what is commonly referred to as an "information age" and as a result there is a need to engage in continuous learning to keep abreast of the ever-expanding knowledge in our world. Also, many people have more leisure time in which they are able to participate in educational activities. Changes in the economy have led to job changes for many individuals and as a result they are faced with a need to learn. Thus, while for some learners educational activity is a leisure pursuit, for most, it is a result of a life change or is job-related. This has been the case for several decades. In 1965, Johnstone and Rivera (cited in Courtney, 1992) conducted the first national study on the nature of adult education in the USA. Their results showed that for the most part, adults engage in learning activities for practical or skills-related purposes as opposed to academic reasons. Darkenwald and Merriam summarize this situation by stating that "adult education is not concerned with preparing people for life, but rather with helping people to live more successfully" (1982, p. 8). Taking this a step further, Guglielmino and Guglielmino (1988) refer to the advice of John Naisbitt. In his book Reinventing the Corporation (1985) he suggests that no one subject will serve the learner well, rather, learning how to learn will be an important skill for surviving in the information age.

The educational activities of adults do not just take place in schools. It is becoming more accepted that education may occur in many settings and may involve many types of activities. As such, the family, the church, the workplace, the media and the library all have important roles in adult education. It is apparent then that schooling and education are not synonymous terms.

In order to clearly understand the concept of adult education, it is beneficial to examine the words "adult" and "education". There is no agreed upon set of terms in the field of adult education and different terms are therefore used for the same thing.

### **Who is an Adult?**

It is important to have a understanding of the word "adult" so that the term "adult education" is used appropriately and with clear meaning. Many authors have attempted to define "adult" with a range of functional, social and psychological definitions being suggested. Selman and Dampier (1991) acknowledge the difficulty of defining an adult even within any one society. While age is a major factor to be considered, one's social roles as defined by the courts for such matters as driving, voting and marriage must also be taken into account. Darkenwald and Merriam (1982) explain that the word "adult" not only includes biological maturity "but also social and psychological maturity in regard to judgement, autonomy, responsibility and the assumption of adult life roles" (p. 8).

Knowles (1980) lists the following criteria of adulthood in his definition: the individual performs social roles typically assigned by our culture to those it considers adults (e.g., worker, spouse, parent, responsible citizen), and the individual perceives himself or herself to be essentially responsible for his or her own life.

### **What is Education?**

Darkenwald and Merriam (1982) define education as "broadly conceived as the deliberate, systematic and sustained effort to transmit, evoke or acquire knowledge, attitudes, values or skills, as well as any outcome of that effort..." (p. 2).

There is a difference between education and learning, while learning can be "non-deliberate or incidental, unorganized and of very short duration," education is "purposeful, organized and of consequential duration" (Darkenwald & Merriam, 1982, p. 6). Knowles (1975) states that education must be defined as a lifelong process.

Candy (1991) discussed learning as a lifelong process and suggested that it be thought of as "a qualitative shift in how a learner views or thinks about a person, situation, idea, experience, event, or other phenomenon of interest" (p. 294).

Although a difference can be noted between education and learning, they are closely related and one finds that the concept of lifelong learning parallels the notion of lifelong education. Courtney (1992) offered a distinction between the terms of adult education and adult learning.

Adult education has come to connote the institutionally based program, formal attendance in classes, certification, and the authority of experts. Adult learning, by contrast, connotes adults freely going about the business of learning in the context of the business of life. Adult learning means self-directed learning, the freedom to choose,... (p. 17).

### **Definition of Adult Education**

In many settings, adult education has been considered an "added on" activity, and in most instances adult learners participate in formal adult education activities in a part-time capacity, or if full-time, then for a short duration. As a result, many of the early definitions of adult education have included the notion of part-time involvement.

"Adult education is a process whereby persons whose major social roles are characteristic of adult status undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values or skills" (Darkenwald & Merriam 1982, p. 9). Almost anyone can be considered a participant in adult education if the definition is general enough, however as the definition is more limited, rates drop to 12-30% participation for adults who engage in "organized learning" and down to less than 10% when only those registered in credit courses are considered (Cross, 1981, p. 54).

Johnstone and Rivera's (1965) study of adults' participation in education determined that blacks, the elderly, those who failed to graduate from high school and those with low incomes were underrepresented in organized learning activities. The amount of formal schooling one had was found to have the most influence on one's participation in educational

activities. That is, the more education people have, the more interested they are in further education and the more likely they will be to seek out and participate in it.

Selman and Dampier (1991) point out the important distinction between adult education and adult learning by stating that learning is the intended end-point of education (p. 4). In our society, most adult learning occurs outside of traditional educational institutions.

The how and why of adult education comes together to some extent in developmental psychological theories. Much research has been done regarding how life span changes affect learning. For example, physical capabilities, mental abilities, interests, attitudes, values, creativity and lifestyles have been studied in adults of all ages and have produced results that are useful in planning and delivering educational opportunities. Stages of growth and the associated developmental tasks have been identified by Havighurst (Weiten, 1986). These models help to explain a person's readiness to learn different things at different times. Similarly, Lindeman, (1926) believed that adult learning is life-centred and is motivated by experience and interests. Lindeman also acknowledged individual differences among people which increase with age and he suggested that adult education must take such differences into account.

For many people, the term adult education suggests night school or a recreational activity and as such it is not a universally accepted term. Several related terms or synonyms have emerged, such as lifelong learning, continuing education and androgogy. Darkenwald and Merriam (1982) suggest that the term lifelong learning implies that "the adult learner is pursuing education beyond the point where he or she left formal schooling" (p. 12). It can be seen as a way of life or as an attitude toward the acquisition of knowledge (Craft, et al, 1992).

The concept of lifelong learning suggests that there is continuous learning throughout the life span, however, it may be uncertain as to whether such learning is deliberate or incidental. It is clear that learning is no longer viewed as a formal, terminal process occurring early in life but rather it is an informal or formal process that endures throughout one's life span. Its purpose and form must be adapted to the needs of individuals at different stages of their

development (Darkenwald & Merriam, 1982, p. 3).

The term continuing education is commonly used by colleges and universities and professional bodies in reference to adult education activities. This term began to be widely used in the 1940s and 50s. It was used to refer to learning that extends previously received instruction and was considered to apply to professional life (Houle, 1992). The term continues to be used in this manner, but in recent years has also been extended to cover situations where a person is "moving on" in their (usually) formal or credentialed aspects of education (Selman & Dampier, 1991).

Baumgart and Larsen (1988) define "continuing education" as an organized learning experience which is extended to build on first-level nursing preparation and practical experience. It may take place under the auspices of an educational institutional or other educational provider, or be self-organized and directed. It may be credit or non-credit. It is intended to contribute to the enhancement of nursing practice, education, administration and/or research, and the fulfilment of individual nurse's professional goals (p. 366).

Educational activities offered for employees of hospitals are usually referred to as "inservice education." They are brief, specific, and have no credit value and most often are attended voluntarily.

The term "androgogy" was popularized by Malcolm Knowles (1980) and means "the art and science of helping adults learn." It is derived from the Greek word "aner", meaning man. The androgogical approach to education is less formal, more collaborative and leaves room for learners to provide input in directing their own learning. The term andragogy is used more and more to refer to the set of assumptions and methods pertaining to the process of helping adults learn. It is the philosophical orientation upon which adult education is built. Although it is based on a humanistic way of thinking, Darkenwald and Merriam (1982) stated that it has also been influenced by behaviourists, Gestalt psychologists and cognitive theorists.



Although Knowles initially defined andragogy as the art and science of helping adults learn (1980), he later altered his view in that he acknowledges the usefulness and need for didactic or pedagogical approaches in some situations with adult learners (1984).

Knowles (1980) operates on four basic assumptions for andragogy which are: as a person matures, his or her self-concept moves from one of dependant personality to one of a self-directing human being; an adult accumulates a growing reservoir of experience, a rich resource for learning. For an adult, personal experiences establish self-identity and so are highly valued; the readiness of an adult to learn is closely related to the developmental tasks of his or her social role; there is a change in time perspective as individuals mature, from one of future application of knowledge to immediacy of application; thus an adult is more problem-centred in learning (p. 44).

One of the most distinctive aspects of adult education is that it need not occur in a formal classroom setting in the same way we associate education with younger learners. Adults require more flexibility in both location and approaches to learning. As a result, distance education, correspondence courses and computer-assisted instruction are popular modes of delivering material. Learners may engage in learning activities on an individual basis with these methods, or may choose to gather with other learners in such settings as churches, community centres, hospitals, etc.

In summarizing the literature on adult continuing education, Courtney (1992) concludes that the participation rate among adults engaging in continuing education ranges between 15% and 50%, depending on the source and how and for what purposes the participation rate was studied. As for the lack of participation by some adults, the problem of how to increase it remains as much a dilemma today as it was when researchers first began to investigate it.

### **Continuing Education in Nursing**

Continuing education in nursing is built upon the concepts of andragogy. Much of the research in continuing education of adults pertains to nurses as a group within the larger group of adults. The term, "continuing education" will be used throughout this paper to refer to the educational activities of registered nurses. Such activities may include either credit or noncredit course work, workshops, self-study or self-directed learning which an individual engages upon to meet his or her own learning needs. These activities are related to professional practice and therefore do not include leisure pursuits.

The value of continuing education in nursing has been recognized for many years. The fact that advances occur rapidly and continuously in the field of health care has an impact on registered nurses and requires that they engage in continuing education in order to maintain competency and to maintain standards of care. The need for continuing nursing education is evident when it is recognized that

first level nursing education programs, whether diploma or baccalaureate, cannot and do not pretend to prepare nurses to meet all the changes that will occur in practice and in the workplace as society's health needs and ways of meeting them evolve"

(Baumgart & Larsen, 1988, p. 367).

The College of Nurses of Ontario (1987) has stated that in order to "maintain competence, registrants must engage in continuous learning throughout their professional careers" (p. i). Such statements underscore the importance of continuing education in the nursing profession.

Although nurses may participate in continuing education for a variety of reasons, the ability or tendency to be self-directed in one's attempts to gain knowledge or skills for the purpose of maintaining competency in one's practice is of interest in this paper.

## Motivation

"The biggest problem with motivation is that we cannot see it and we cannot touch it".

"The *motives* people bring with them to a learning situation strongly affect how and what they learn" (Wlodkowski, 1985, p. 2).

Wlodkowski describes motivation as a continuum, not an "either-or" characteristic in learners (1985, p. 3). This being the case, if we consider the fact that most adults engage in learning based on a learning need, or an event in their lives, it seems fair to assume that there is more than minimal motivation to learn in such situations. It is important to capitalize on this motivation to learn and to minimize any detractors to the learning situation.

Most adult learning is done on a voluntary basis. In the past, continuing education was seen as a means of advancing; however, it is now regarded as a necessity in order to keep pace in our ever-changing society. Over the years, the topic of motivation to learn has been investigated, yet the question remains of why some adults participate in continuing education and others do not.

Nurses encounter new information, drugs, and technologies on an almost daily basis. Thus, there is a tremendous impetus for them to engage in continuing education to keep up with these advances. The motivation to learn may be as simple as a desire to remain competent in order to maintain a job or to feel good about oneself, knowing that he or she is practising up-to-date care. Factors which promote and discourage participation in continuing education have been studied among nurses as well as among the general adult population.

Cross (1981) suggests that one's motive for learning differs from one individual to another and may differ at different stages of life and that most individuals have more than one reason for learning., Tough (1979), however, argued that

some anticipated use or application of the knowledge and skill is the strongest motivation for the majority of learning projects. For the majority of learning projects, most adults are motivated by some fairly immediate problem, task, or decision that

demands certain knowledge and skill (p. 39).

Tough also suggests that adult learning is motivated by curiosity, interest, and enjoyment (p. 1).

Houle (1961) studied the motivation of adult learners and found that adult learners fell into three groups. The first group, goal-oriented learners, use specific learning to gain specific objectives and they choose whatever method will best achieve their purpose. The second group, activity-oriented learners, are those who participate primarily for the sake of the activity itself rather than to develop a skill or learn a subject matter. The learning-oriented group, the third category, are those adults who pursue learning for its own sake. The activities of the learning-oriented individual are lifelong and constant.

Candy (1991) refers to the 1963 work of Havighurst in which he identified two reasons for learning. They were classified as instrumental education and expressive education. Instrumental education referred to education which could change the learner's situation. By learning something specific, the learner could expect to gain something else. Expressive education was considered similar to Houle's (1961) activity-oriented learning. The learner studied something for the pleasure of learning.

Some nurses participate in continuing education because they are self-motivated in relation to goals, learning, and/or a sense of professional duty. According to Houle (1961), these nurses would be goal- or learning-oriented. Many other nurses are not self-motivated and only participate in continuing education because of extrinsic factors such as organizational demands, peer pressure, legal requirements, material rewards or the promise of a promotion or role change (Hauf, 1981).

Numerous researchers have attempted to identify reasons why or why not nurses engage in continuing education activities. A Canadian study by Clark and Dickinson (1976) investigated nurses' reasons for participation, extent of participation, and attitudes toward continuing education. The results of their study supported Houle's (1961) findings regarding

reasons for engaging in continuing education, and as well determined that the majority of nurses had a moderately to highly favourable attitude toward continuing education. The more favourable the attitude toward continuing education, the more the nurse was inclined to participate in continuing education activities in nursing.

Puetz (1980) determined that registered nurses attended continuing education activities for both personal and professional self-improvement, to learn more in their specific field and to satisfy the need to keep abreast of changes.

The three main reasons that Hauf (1981) identified as motivators for registered nurses to engage in continuing education were that the hours were required for relicensure, for professional advancement, and to help them in their work.

O'Connor (1979) found that the reasons nurses participate in continuing education could be placed in one of six categories. The categories she listed were: improvement in social relations, professional knowledge, compliance with authority, relief from routine, professional advancement, and improvement in social welfare skills. Her study compared nurses in states where continuing education was mandatory for relicensure as opposed to in states where it was voluntary. In states where mandatory continuing education was in place, compliance with authority was the primary reason given by nurses for their involvement. In states where continuing education was voluntary, scores were higher for improvement in social relations, professional knowledge, relief from routine, and for professional advancement. O'Connor also found that nurses employed full-time scored higher on the professional knowledge, professional advancement and improvement of social relations categories.

Urbano and Jahns' (1988) research supported O'Connor's (1979) findings. Participants in their study identified cognitive interest and a desire for professional advancement and competency as being their primary motivators to engage in continuing education.

Among the general adult population, Cross (1981) identified three categories of barriers to continuing education: situational, institutional, and dispositional. Examples of situational

barriers are: lack of time due to other obligations such as home and job responsibilities, lack of money, childcare and transportation. Inconvenient schedules and locations, full-time fees for part-time study, inappropriate courses of study, and other practices which exclude or discourage working adults from participating are some examples of institutional barriers. Dispositional barriers include the learner's attitudes regarding confidence, ability to learn, and interest in learning (p. 98). Reasons for nurses not attending continuing education activities have also been investigated. Puetz (1980) described these as: family obligations, inconvenient location of event and not being able to take time away from work. Similarly, Hough (1981) listed the following reasons: nothing offered of interest, unable to attend when course offered, location too far away, fees too high, content too basic, and could not get away from work. Nurses have similar reasons as other adults for not engaging in continuing education activities, and their reasons can also be grouped according to Cross's (1981) categories.

Age, employment status, basic nursing education level, and area of clinical practice are other factors which have been investigated by researchers interested in nurses' involvement in continuing education. Younger nurses were found to attend more workshops and enrol in more college credit courses (Curran, 1977), and attenders of continuing education activities were found to be significantly younger and had completed their basic educational preparation in nursing more recently than nonattenders (Puetz, 1980).

Curran (1977) also found that full-time nurses engaged in more reading, enrolled in more college credit courses, and spent more money on educational materials than did part-time nurses. Nurses employed full-time were found to attend continuing education activities on a 2:1 ratio more so than part-time nurses in Puetz's research (1980).

Diploma graduates enrolled least often in college courses and rated themselves as less active continuing learners than other registered nurses in Curran's (1977) study. Puetz (1980) also found that diploma graduates tended to be nonattenders, while the graduates who were more likely to attend continuing education activities were those with higher levels of basic

educational preparation in nursing. This is congruent with findings from the general population.

Area of clinical practice was examined by Puetz (1980) as a factor related to continuing education involvement. She found that nurses in intensive care and coronary care units attended continuing education activities by a 9:2 ratio, those in geriatric nursing were non-attenders by a 9:7 ratio, and no significant difference was found among nurses in obstetrical/gynecological, pediatric/maternal health, or psychiatry/mental health nurses.

### **Voluntary versus Mandatory Continuing Nursing Education**

Mandatory continuing education describes "the tendency of states and professional associations to require the members of certain vocations and professions to fulfil educational obligations in order to retain and renew their licenses to practice" (Cross, 1981, p. 40). In essence, it removes the option of whether or not to engage in continuing educational activities and negates the principles of adult education. Throughout the 1970s the issue of mandatory versus voluntary continuing nursing education was debated in the United States. Today most states have mandatory continuing nursing education such that certain criteria must be met for the nurse to renew his or her license to practice each year. In Canada, although some other professional groups have endorsed mandatory continuing education, professional nursing associations have not done the same.

The College of Nurses of Ontario supports voluntary continuing education in preference to mandatory continuing education (CNO, 1984, p. 19). The CNO states that continuing education has a relationship to competence, but recognizes that caution is needed in applying this philosophy to maintenance of competence. Changes in behaviour cannot be legislated. If registrants are to keep up-to-date with current standards, their continuing education must relate to nursing practice and to individual learning needs (CNO, 1984, p. 19).

Additionally, the CNO (1987) cites findings from American studies which have investigated the cost versus benefit of mandatory continuing education. It has been found that there is a tremendously high cost associated with mandatory continuing education, and there is little evidence of related increases in professional competence.

### **Effectiveness of Continuing Education in Nursing**

Given the cost and the effort required to provide or facilitate continuing education opportunities for nurses, it is important to consider the potential effectiveness of continuing education. Factors in the work environment may influence how nurses use the knowledge gained from learning experiences. If knowledge gained through continuing education is used to enhance the quality of patient care, then this bridges the gap between theory and practice. This is tremendously important to the nursing profession (Scheller, 1993).

American administrators who endorsed mandatory continuing education were of the belief that continuing nursing education should result in improved practice and maintenance of competencies. By mandating that a certain amount of continuing education be completed on an annual basis, it was expected all nurses would maintain competencies and the level of care provided would improve.

In recent years, attempts have been made to measure the impact of continuing education in nursing. It is difficult, however, to measure the effects of continuing education on both nursing practice and on the quality of patient care because appropriate assessment techniques may not exist. In addition, there may not be agreement as to what constitutes use of new knowledge, as it may take the form of either an observable change or may involve conceptual changes such as thinking, judging and evaluating skills. Also, a variety of factors may have an impact on how, or if, knowledge gained through continuing education affects nursing practice (Scheller, 1993).



Waddell (1991) conducted a meta-analysis to investigate the effects of continuing education on nursing practice. Thirty-four studies were examined and the results indicated that continuing education in nursing was likely to result in improved nursing practice for greater than three-quarters of the participants.

Kellmer-Langan, Hunter, and Nottingham (1982) determined that increased knowledge and skills obtained through attending a continuing education workshop were evident even three months after nurses participated in the learning experience. A less encouraging work environment may have resulted in less favourable outcomes with respect to use of knowledge and skills gained through continuing education. Although many factors may affect how the nurse applies the new knowledge or skills, the atmosphere of the work environment is certainly influential (Scheller, 1993) and may therefore either encourage or deter the nurse from applying that which he or she has learned.

### **Self-Directed Learning**

The study of self-directed learning generally takes one of two approaches; that of process, or that of trait. The process of engaging in self-directed learning has been examined by researchers such as Tough (1979) and Knowles (1975). The concept of self-directed learning being a characteristic of learners has been of interest to Guglielmino (1977), Oddi (1987), and Brockett (1985). Self-directed learning as a characteristic of learners, specifically nurses, is of interest in this research.

Self-directed learning is most often described as a form of study in which the learner takes the initiative to plan, conduct, and evaluate a learning activity in order to meet an identified need (Knowles, 1975). The learner may enlist the assistance of material or human resources, enjoys more autonomy than in traditional learning situations, sets his or her own pace, and determines when and to what extent the goals have been met. Knowles (1975) explained that self-directed learning begins with the learner becoming aware of the need for

learning, and that it assumes that learners are motivated by internal incentives. Candy (1991) has suggested that self-direction is a quality that may be present in varying degrees, as opposed to being a trait that individuals either do or do not possess. The necessity of becoming a self-directed learner has been agreed upon by numerous researchers (Brookfield, 1985; Candy, 1991; Cross, 1981; Houle, 1961; Knowles, 1984; Tough, 1979).

Having determined that self-directed learning does in fact exist, it then becomes important to determine how it can be measured. Guglielmino's (1977) Self-Directed Learning Readiness Scale (SDLRS) is the most commonly used instrument for measuring an adult's readiness to be a self-directed learner.

In today's rapidly changing society, the value of being a self-directed learner is easily understood. Rapid advancements in health care necessitates that health care workers engage in continuing learning in order to avoid obsolescence and to enhance competence. Individuals who have learned how to learn are in a better position to adapt to change (Guglielmino & Guglielmino, 1988, cited in Long & Associates, 1988). The approach that learners take in their tasks is a reflection of how they view learning, according to Candy (1991). He goes on to state that there is a strong relationship between what is learned and how it is learned. He also cautions that self-directed learners may learn erroneously as a result of poorly understanding the subject of their study.

Self-directed learning does not necessarily mean learning independently or autonomously. Once a learning need is identified and objectives are identified, the learner may employ any number of methods and access a variety of resources to assist in the acquisition of knowledge and skills. Engaging in self-directed learning allows for a more individualized approach to the teaching and learning process (Toebe, Armstrong, & Watson, 1982).

According to Tough (1979) it was common for an individual to spend 700 hours a year on self-directed learning projects. A learning project was described as a deliberate effort to learn, could be a series of related episodes, and must involve at least seven hours of time.

Tough (1975) estimated that 90% of the population participate in at least one learning project a year. As cited in Dixon (1991), Moran determined that nurses in her sample spent 748 hours per year on nonprofessional self-directed learning projects and 469 hours annually on professional self-directed learning projects. Emblem & Gray (1990) reported that nurses in their sample spent 217 hours on professional and 96.76 hours annually on self-directed learning projects. Dixon's (1991) study revealed that nurses spent 217 hours in personal learning projects and 152 hours each year on professional learning projects. In summarizing a number of studies, Cross (1981) stated that participation in self-directed learning is almost universal, with approximately 80-100% of adults conducting at least one learning project each year.

A variety of terms have been used in the literature in reference to self-directed learning. Oddi (1987) summarized several of them: self-education, independent study, independent learning, self-teaching, self-instruction, individual learning, independent self-instruction, autonomous learning, self-directed inquiry, self-initiated learning, and andragogical learning. Regardless of the terminology used, a common assumption associated with all the concepts of self-directed learning as a process is that the learner engages in activities which are usually associated with formal instruction; setting goals, developing strategies, identifying resources and evaluating results (Oddi, 1987).

Guglielmino's (1977) Self-Directed Learning Readiness Scale is commonly used to determine the extent to which individuals perceive themselves to possess the skills and attitudes often associated with self-directed learning. Numerous studies support its validity and reliability as is discussed further in Chapter 3. Long and Agyekum (1984) explained that if self-direction attitudes could be taught or learned, it is important to be able to measure the construct known as self-directed learning readiness. "Without a valid and reliable measurement device or procedure to measure self-direction in learning it is difficult to determine the relative efficacy of different procedures that might be used to teach or learn self-direction" (p. 255).

Crook (1985) did not find the SDLRS to be useful as a predictive tool. It accounted for only 8 percent of the variance in her research examining student nurses' final marks and their scores on the SDLRS.

Brockett's (1985) investigation of life satisfaction and self-directed learning readiness resulted in the following findings. A statistically significant positive relationship was found between the variables of SDLRS score and life satisfaction; previous education was found to be a slightly stronger predictor of self-directed readiness than life satisfaction (p. 216); and age did not correlate with either self-directed readiness or with life satisfaction.

Although Brockett (1985) has demonstrated a positive correlation between scores on the SDLRS and higher grades in school, neither Finestone (1984) nor Long and Agyekum (1983, 1984) were able to report similar findings through their research (cited in Long & Associates, 1988). Guglielmino & Guglielmino's 1983 study of managers in a utility company identified respondents between the ages of 46-55 as having lower scores on the SDLRS than those of other age groups (cited in Long & Associates, 1988).

The same study by Guglielmino & Guglielmino (1983) resulted in females obtaining significantly higher scores on the SDLRS than males. No relationship was noted between sex and SDLRS score in the studies by Finestone (1984) and Long & Agyekum (1983, 1984) (cited in Long & Associates, 1988).

Brockett (1985) was again alone in finding a positive correlation between SDLRS score and educational achievement level (cited in Long & Associates, 1988).

It would be interesting to determine whether or not other factors are associated with readiness to engage in self-directed learning. For example, does the SDLRS really measure "readiness" or is it a measure of motivation? How can we explain the persistence of some individuals to continually pursue self-directed learning activities? Is one's personality or psychological type related to one's score on the SDLRS? That is, are some "types" more inclined to engage in self-directed learning? Is one's preferred method of learning related to

one's readiness to engage in self-directed learning? These questions will be addressed in this research.

Further information regarding the structure and reliability and validity of the Self-Directed Learning Readiness Scale can be found in Chapter 3.

### **Learning Styles**

The fact that adults' learning interests are based on vocational interests and personal goals was first described by Johnstone and Riveria (1965). Tough (1979) found that most adults' learning projects were self-directed, independent and often related to current problems in their daily lives. Knowles' (1980) contribution to adult learning theory suggests that adults prefer learning situations which: (1) emphasize practical, experience-related learning opportunities; (2) assist them in developing the ability to perform the developmental tasks associated with their social roles; and (3) which allow them to pursue their learning needs in a self-directed and independent manner (cited in Merritt, 1983). In discussing how learners approach learning tasks, Candy (1991) explains that the "approach adopted by a learner is a function of his or her preferred learning style" and may be influenced by the subject matter as well as the learner's perceptions of the demands of the learning situation (p. 281).

Having determined the what, why and how of adults' learning preferences, the cognitive learning behaviours of adults then become of interest. Language acquisition, memory and other aspects of one's ability to learn have been extensively researched by developmental psychologists. The steps involved in learning are of interest in this research as opposed to what is learned and how well the knowledge is acquired.

Kolb (Kolb, Rubin, & McIntyre, 1984) proposed a four-stage theory of learning. A learning style is defined as the way individuals organize information and experience. This model of learning is based on experiential learning and therefore emphasizes the importance of experience. Kolb believes that there is a strong relationship between how individuals learn and

how they respond to life situations. He has suggested that learners are attracted to disciplines with learning environments congruent with their learning styles and that these styles are further developed by experience in the discipline (Kolb, et al, 1984).

The four stages of learning described by Kolb are: (1) concrete experience of a learning situation; (2) reflective observation of relevant phenomena; (3) abstract conceptualization about the meaning of what has been observed; and (4) active experimentation relative to what has been experienced, observed and conceived as pertinent to the learning situation. The degree to which an individual favours particular stages of the learning cycle suggests his or her preferred learning style. For example, Kolb suggests that the individual who prefers to learn through concrete experience does so by becoming involved in immediate new experiences. He or she emphasizes feeling as opposed to thinking, and may adopt an artistic approach to problem solving rather than a scientific manner. These individuals are open-minded, function well in unstructured situations, and value relating to people and being involved in real situations. Those who learn through the reflective observation mode have a preference for observing and reflecting upon experiences from a variety of perspectives. Their emphasis is on understanding as opposed to identifying practical applications. They value patience, impartiality, and thoughtful judgement. Learners who emphasize abstract conceptualization create concepts and theories about that which they have experienced. They are good at planning, and they focus on thinking and building theories as opposed to feeling and understanding. They approach problems in a scientific manner and value precision and rigorous analysis. Those who favour active experimentation use existing theories to problem-solve. They have a preference for practical applications and enjoy influencing people and changing situations.

Kolb believes that the four-stage learning cycle is a continuously recurring one in which the elements occur in sequence. The learning process can begin anywhere in the cycle. Although all four learning modes are used to some extent by all learners, each individual is

believed to prefer a combination of two of the four modes of learning. Each possible combination of two of the four stages has been given a name by Kolb. Learners who use concrete experience and active experimentation are referred to as accommodators; those who use concrete experience and reflective observation are divergers; assimilators use reflective observation and abstract conceptualization; and convergers use abstract conceptualization and active experimentation. The Kolb Learning Style Inventory (Kolb, et al 1984) is a simple self-description test which can be used to determine a learner's preferred learning style. It measures the individual's strengths and weaknesses as a learner in the four stages of learning postulated by Kolb. Further discussion of the Learning Style Inventory can be found in Chapter 3. The following are descriptions of characteristics displayed by individuals with the learning styles identified by Kolb (Kolb, et al, 1984).

Individuals with the accommodator learning style prefer doing things, carrying out tasks and plans, and getting involved in new experiences. Action, risk-taking, and seeking opportunities define the adaptive emphasis of these individuals. Learners with this style tend to rely on others for information rather than using their own analytic ability. They tend to solve problems in a trial-and-error, intuitive manner and enjoy a hands-on approach. This learning style is best suited for situations in which one must adapt to new circumstances, and is often seen in people in business or technical and practical fields. These individuals are often at ease with people and prefer action-oriented jobs.

Assimilators have the opposite strengths of those with an accommodator learning style. These people depend on the cognitive skills of abstract conceptualization and reflective observation, therefore inductive reasoning, creating theoretical models and assimilating diverse items into an integrated whole are the strengths of these individuals. Those in the basic sciences and maths as well as people in research and development departments of organizations often have this learning style.

Divergent learners focus on concrete experience and reflective observation. As a result, they are very imaginative and are aware of meanings and values. They are able to see concrete situations from a variety of perspectives and are therefore able to generate alternative ideas. This type of learner is interested in people and tends to be oriented by feeling. Such qualities are often found in counsellors, organization development specialists and personnel managers.

The converger learning style relies primarily on abstract conceptualization and active experimentation. Problem solving, decision making, and practical application of ideas are the strengths of individuals with this learning style. Consequently, they prefer dealing with technical tasks and problems and do not readily display their emotions. The convergent learning style is common among engineers and technical specialists.

It is important to note that Kolb (Kolb, et al, 1979) cautions that the learning style inventory does not identify an individual's learning style with complete accuracy. Rather it is intended to identify which of the four modes the person usually emphasizes in a learning situation. One's learning style may change from one situation to another, and in fact an effective learner will be competent in each mode when it is most appropriate.

Kolb (Kolb, et al, 1979) stated that his research identified nurses as generally having a converger learning style. Subsequent studies among other researchers (Laschinger & Boss, 1984; Merritt, 1983) have examined preferred learning styles of nurses. Merritt (1983) studied a group of basic nursing students (those enrolled in their first formal educational preparation for licensure as registered nurses) and a group of RN students (those with significant professional nursing work experience) enrolled in a generic baccalaureate nursing program. Although the results of the study were not reported in terms of the categories of learning styles as identified by Kolb, Merritt (1983) did report a significant difference between the two groups for their scores on the reflective observation scale (p. 370). She determined that the age of the students and the work experience of the RN students did not account for the differences in learning style



preference between the two groups. Laschinger and Boss (1984) examined learning characteristics of first- and fourth-year nursing students. The largest proportion of students were divergers or accommodators, however, all four learning styles were represented. The relationship between learning style and preferred nursing specialty was also examined, yet contrary to the researchers' expectations, no relationship was identified (p. 204).

### **Psychological Types**

Over 70 years ago, Jung identified 8 psychological types based on his work with clients. His work continues to influence researchers today.

#### The Attitudes

Jung's (1962) general description of the types begins with an explanation of what he terms "general-attitude types" - introverts and extroverts (p. 412). The individual's attitude to the object determines his or her classification. "The introvert's attitude to the object is an abstracting one" (Jung, 1962, p. 412). He attempts to withdraw libido from the object, moving toward the subject in his mind. His psychic energy is drawn towards the inner world.

The extravert maintains a positive relation to the object (Jung, 1962, p. 412). Those in a state of extraversion "think, feel and act in relation to the object" ... "extraversion is an outgoing transference of interest from the subject to the object" (Jung, 1962, p. 542).

Jung explains that the flow of psychic energy is rarely undisturbed. Circumstances in the world and our inner disposition lead an individual to favour one mechanism or attitude over the other. Both attitudes exist within each individual, however, one dominates and the other is suppressed. He cautions that "there can never occur a pure type," but rather an attitude signifies the predominance of one mechanism over the other (Jung, 1962, p. 542). The distribution of attitude-types is random, and can often be identified in the early years of childhood (Jung, 1962, p. 414-415).

### The Functions

Jung defines a function as a form of psychic activity that remains theoretically the same under varying circumstances (1962, p. 547). One's function is the manner in which the individual relates to the world. He describes four basic psychological functions -- thinking, feeling, sensation, and intuition -- and explains that each one can exist in either the extraverted or introverted attitude, therefore resulting in 8 possible psychological types. In each individual, one function is likely to dominate in both strength and development, while another will serve as an auxiliary function by supporting the dominant function. In this way each function has a different strength in each person (Jung, 1921, cited in Cranton & Knoop, 1995). One's inferior function is the least differentiated of the functions (Jung, 1962, p. 563).

The functions are categorized as rational or irrational. Thinking and feeling are considered the rational or judging functions and are characterized by the supremacy of reasoning (Jung, 1962, p. 452). Those whose dominant function is rational (either thinking or feeling) are not entirely dependent upon reasoning judgement alone; they are influenced to an almost equal degree by unconscious irrationality (Jung, 1962, p. 453). Thinking is the process of making judgements based on factual reasoning and logical thought processes. Feeling is the process of making a judgement based on values.

The irrational functions are sensation and intuition. Jung (1962) explains that their "commissions and omissions are based not upon reasoned judgement, but upon the absolute intensity of perception" (p. 468). These functions are used in the collection of data. Sensation involves use of the senses to obtain information. Intuition involves the use of insight to perceive a situation.

### The Eight Psychological Types

An individual's personality is expressed by his or her dominant function (the dominant attitude of either extraversion or introversion combined with the primary function), an auxiliary

function which is of secondary importance, and an inferior function. The auxiliary function is less differentiated in the individual's unconscious, but is always present and affects how one is perceived. The inferior function is the function which is least well differentiated. The eight types described by Jung (1962) are: extraverted thinking, extraverted feeling, extraverted sensing, extraverted intuitive, introverted thinking, introverted feeling, introverted sensing, and introverted intuitive. Jung cautions that while his descriptions of the types are of the extreme form, such extreme cases are rare. The following descriptions are based on the work of Jung (1962).

#### The Extraverted Thinking Type

When supremacy is given to thinking, the individual is referred to as a thinking type. The life of such an individual is ruled by reflective thinking, intellectual decision making, and he is oriented by the object and objective data (Jung, 1962, p. 428). He attempts to make sense of everything in his life by drawing intellectual conclusions about objective data. To him, things are either right or wrong, good or evil. He is intolerant of exceptions or deviations. Extraverted thinking types are most commonly men. Such individuals have creative and productive thoughts and are able to develop and expand upon their thoughts. Since feeling is the opposite of thinking, it is those aspects of one's personality associated with feeling that are most repressed.

#### The Extraverted Feeling Type

Extraverted feeling types are oriented by objective data. They are agreeable and accommodating and value tradition. They value sociocultural events (church, theatre, concerts) as well as fashion, and such values have an influence on the behaviours and attitudes of society. These individuals strive for a harmonious existence. Most often, extraverted feeling types are women. Thinking (the opposite of feeling) disturbs feeling types. Although these

individuals may engage in thinking, they will abandon any conclusion which distorts their feeling.

### The Extraverted Sensation Type

Jung (1962) claims that no other type can equal the extraverted sensation type in realism. Such an individual's sense for objective facts is extremely well-developed (p. 457). The majority of this type are men, according to Jung (p. 458). Judging, rational functions are inferiorly differentiated in this type, with the most repressed function being intuition. Persons of this type dress and eat well, are fine hosts, are charming and have a great capacity for enjoyment. He or she is considerate, unpretentious, and considers the actual to be ideal. In the extreme form, such individuals can be crude pleasure-seekers.

### The Extraverted Intuitive Type

Those with the extraverted intuitive type as their dominant function have a keen nose for possibilities. They find stability suffocating and are therefore always in search of something new. He or she eagerly seizes hold of new objects, but just as quickly abandons them once their potential is recognized. He or she lacks judgement and may be considered immoral and ruthless, yet he or she can inspire and generate enthusiasm. This type is more common among women.

### The Introverted Thinking Type

Introverted thinking is primarily oriented by the subjective factor. It begins in the subject and returns to the subject. Facts are collected as evidence, but not for their own sake (p. 480). He or she views him or herself in a negative manner, as superfluous. He or she gives the appearance of being cold and judgmental, obstinate and inconsiderate. He or she is frequently misunderstood, tends to complicate matters in his or her way of thinking, and is

stubborn and difficult to influence when in pursuit of an idea. His or her closest friends value their friendship, but he or she is difficult to get to know.

#### The Introverted Feeling Type

All that was said of the introverted thinking type applies as well to the introverted feeling type, but in this case it is felt, not thought. Such types are primarily women. "Still waters run deep" is a description which applies well to this type (p. 492). They seldom reveal themselves or their motives, yet their behaviour appears harmonious and inconspicuous. They respond with peace and harmony to familiar objects, but with cold indifference to anything new. Their infrequent expression of feelings are often misinterpreted.

#### The Introverted Sensation Type

In the introverted attitude, sensation is based upon the subjective portion of perception. In other words, introverted sensing individuals put their own interpretation on the object. This subjective perception alters the object considerably. Individuals of this type are difficult to get through to and even have difficulty understanding themselves. They see things differently than do others and may find themselves in difficult situations as opposed to being able to seek out positive or promising situations.

#### The Introverted Intuitive Type

This individual may be seen to be a mystical dreamer or unusual artist. They have difficulty perceiving accurately, communicate poorly, lack judgement, and are very difficult for others to understand. They tend to have difficulty understanding or even accepting that moral problems may exist. Their world is one of inner images, and they are fascinated by the possibilities that life holds.

### **The PET Type Check**

Developed by Cranton and Knoop (1995), the PET Type Check is a quantitative inventory which was designed to more closely reflect and identify Jung's typologies than does the Myers-Briggs Type Indicator (p. 259). Discussion of the instrument's reliability and validity can be found in Chapter 3.

The PET Type Check uses a five-point scale ranging from 1 (NO!) to 5 (YES!) to respond to statements about how the individual perceives him or herself in interacting with others. Scores are transferred to a profile which represents the individual's psychological type. The descriptions of the types are based on Jung's eight psychological types. From the description individuals receive, they may gain some understanding of their personality characteristics. If similar information is shared among a group of participants, the intention is that everyone will develop a better understanding of each other's psychological type. No two profiles are identical, although there are clear patterns.

An understanding of the dominant psychological types of a group of learners such as nurses pursuing continuing educational activities may be beneficial in planning appropriate content and delivering it in a suitable style for the group. Cranton and Knoop (1995) have proposed that there are typical and preferred learning styles for each of the psychological types. Their descriptions of the types include information about how such individuals process information, make decisions, and relate to others. This information can be valuable in understanding how those in each type learn (Cranton & Knoop, 1995). The following examples are based on descriptions of type and learning style according to Cranton and Knoop (1995).

Rational types (thinking and feeling) learn through judgement based on logic or values. Irrational types (sensation or intuitive) learn through perceptions of possibilities and are not concerned about their connections with reality.

Extraverted thinking types are directive thinkers and emphasize logic and the analytical nature of information received by others. Introverted thinking types are intellectual thinkers who emphasize the importance of internal models and theories, with little concern about their relationship to reality.

Extraverted feeling types are concerned with harmony in the environment and will learn through interacting with others in a compatible way. Introverted feeling types see things in their own way, but still base learning on value judgements.

Extraverted intuitive types ("action-oriented intuition") emphasize possibilities among people and objects they encounter. They learn through interaction and discussion with others. Introverted intuitives ("visionary intuitives") follow their own inner images exploring and learning, regardless of what goes on in the external world.

Learning through experiences in the external world is how extraverted sensation types learn best. Real-life experiences are also important for introverted sensation types, but they interpret their experiences and learn from them in unique and internal ways.

This demonstrates that information about psychological type and preferred methods of learning can be combined in order to work more effectively with a group of learners for whom such information is known. Therefore, if it can be demonstrated through this research that predominant learning preferences, and psychological types exist among registered nurses, this information can be used by educators to assist nurses with continuing educational endeavours. Additionally, if it can be shown that nurses are ready for self-directed learning, this information can also be incorporated into planning continuing education for nurses.

The literature on adult education is abundant. Similarly, the amount of information known about continuing education among nurses is mounting. However, most of the research focuses on one or two aspects of continuing education at a time and fails to examine ways in which some the factors may be related. This study attempts to bring together a number of factors which may be related to the continuing education of registered nurses. In this way it

will suggest future avenues of research with respect to combining factors or characteristics of nurses which can be investigated together as a means of attempting to identify how some of these factors may be related. Therefore, rather than reanalyzing known factors on an individual basis alone, this study will attempt to identify not only a variety of characteristics of nurses as learners, but will investigate how these factors may be related to each other.



## **CHAPTER THREE: METHODOLOGY**

This chapter describes the sample population, methodology, and instrumentation which were employed for the purpose of collecting the data for this study.

### **The Research Questions**

The following research questions were addressed in this study:

1. Is there a dominant psychological type among nurses?
2. Is there a preferred learning style among nurses?
3. Do nurses have the potential for self-directed learning?
4. Are there relationships among psychological type, learning style, self-directed learning and participation in continuing education activities in the nursing population?

### **The Sample Population**

The population of interest in this study were Registered Nurses currently employed in Ontario, and specifically within the hospital setting. A random sample of registered nurses was obtained from two hospitals in southern Ontario. One hospital was a tertiary care, university-affiliated medical centre in a large urban area and will be referred to as Cityview Hospital; the other was a secondary care, community (non teaching) hospital which will be called Waterview Hospital. The two institutions used were chosen based on their convenience in terms of accessibility for the researcher, as well as their familiarity to the researcher.

Both hospitals are located near universities and community colleges, and both hospitals

provide some orientation and in service education for their staff nurses. The two hospitals serve local and catchment populations, and both provide a variety of in-patient and out-patient services.

Registered nurses working in the patient care areas of intensive care, coronary care, emergency, obstetrics, long-term or geriatric care, psychiatry, pediatrics, the operating and recovery rooms and general surgery wards were surveyed in this study.

There were 834 registered nurses on staff at the teaching hospital (including both full- and part-time), and 422 registered nurses on staff at the community hospital (including full- and part-time). A random sample of 154 staff nurses was surveyed between the two hospitals (71 at Waterview Hospital and 83 at Cityview Hospital).

### **Instrumentation**

Each of the randomly selected nurses was asked to complete the PET Type Check, the Kolb Learning Style Inventory, the Self-Directed Learning Readiness Scale, and a Nursing Survey which asked for demographic data as well as for information on respondents' participation in continuing education activities.

#### The PET Type Check

Psychological types of the participating nurses were determined by the use of the PET Type Check (Cranton & Knoop, 1995). It is a self-scored 80-item inventory based on Jung's theory of psychological types. It describes individuals according to their dominant function, auxiliary function and inferior function, although classification is by the dominant function. There are eight psychological types, and descriptions of their behaviours are based on Jung's

(1971) findings as were described in Chapter 2. Characteristics of the eight psychological types identified by the PET Type Check were also highlighted in Chapter 2.

For the purposes of this study, individuals were classified according to their dominant and auxiliary functions.

Reliability and Validity. In developing the PET Type Check, Cranton and Knoop (1995) attempted to maintain as much original wording from Jung's work as possible, only altering it to elicit easy and truthful responses, to facilitate understanding of the phrases, and to eliminate sexist language.

Cranton and Knoop (1995) described in detail the development of the pilot instrument and the next two revisions, including the process used to ensure face and content validity and the statistical methods employed to demonstrate reliability. Further revisions were made based on discrepancies which were found regarding the discrimination among functions.

The initial version of the test was administered to individuals primarily in education-related fields, but a greater variety of individuals was included in the testing of subsequent versions. Numbers of men and women tested were approximately equal, the age range of those tested was from adolescence to retirement, and a variety of individuals with diverse cultural backgrounds were included.

Overall, the test was found to have "acceptable" reliability and validity, and participants described the interpretation of results as "satisfactory, dependable and trustworthy" (Cranton & Knoop, 1995, p. 249).

### The Kolb Learning Style Inventory

The Kolb Learning Style Inventory (Kolb, 1979) is a self-report inventory with nine sets of items. Each set has four options which must be ranked in order of preference by the individual. Each word is related to one of the four stages in Kolb's learning cycle. This inventory was designed to measure the learner's strengths and weaknesses in the four stages of the learning process (Kolb et al., 1984). The four different modes which Kolb suggests that effective learners rely on are: concrete experience, reflective observation, abstract conceptualization, and active experimentation. He proposes that, when learning, most people proceed through these four stages which make up a learning cycle. Individuals tend to prefer one aspect of the cycle over others and this reflects their preferred learning style. (See Chapter Two for further details).

In order to determine one's preferred learning style, an individual's raw scores on the inventory are calculated from the ranked items and then plotted on the target and joined by straight lines. The learner's preferred learning style as well as less emphasized modes of learning are then identified by the shape of the profile. Each quadrant of the target is labelled to represent the four dominant learning styles: accommodator, diverger, assimilator, and converger (Kolb et al., 1984). The characteristics and strengths of each learning style were identified in Chapter 2.

Reliability and Validity. Kolb believes that the four stage learning cycle is a continuously recurring one in which the elements occur in sequence and the learning process can begin anywhere in the cycle. The model, however, has been criticized for being too neat and over simplified (Jarvis, 1987). Kolb does not explain how the learning experiences affect the learner,

therefore, he fails to predict how the learner would subsequently react in a similar situation. Jarvis (1987) identifies particular scenarios in which it would be necessary for the arrows on Kolb's diagram to go in the opposite direction, thereby suggesting that the sequence of stages in the cycle may not occur in every situation as described by Kolb (1979). Kolb's model works best with a situation that begins with a concrete experience, but as suggested by Jarvis, it may not work as well for other types of learning or experiences.

Other concerns with the Kolb Learning Style Inventory (1979) are its brevity and its resulting lack of reliability, the possibility of words being interpreted differently and the fact that the options are presented in the same order on each of the nine items, thereby possibly influencing a response set (Bonham, 1988).

Kolb based his research on the results of a large number of respondents. The sample, however, was two-thirds male and was also highly educated and working in a wide range of professional occupations. Consequently, the norms he identified and which learners use to assess their results, may be norms for a similar group but not necessarily for the population at large or for women.

A revised edition of the Learning Style Inventory was developed by Kolb in 1985. The normative sample used with the revised version was more ethnically diverse and drawn from a wide range of careers. The average education of the newer sample was two years of college (Kolb, 1985). The internal reliability of the scales was measured by Cronbach's alpha and demonstrated very good internal reliability. He tested split-half reliability with items on both the old and new versions of the LSI, and calculated the correlations between both instruments. Strong correlations resulted between the old and the new versions of the instrument which indicated that the results were comparable (Kolb, 1985).

### The Self-Directed Learning Readiness Scale

The Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino, 1977) is a 58-item Likert scale instrument which is administered for the purposes of measuring self-direction in learning. The average score on the questionnaire is 214, and the range of scores for individuals having an average readiness for self-directed learning is 202-226. Scores higher than 226 suggest that the individual has an above-average to high readiness for self-directed learning. Guglielmino (1977) suggests that persons with high SDLRS scores usually prefer to determine their learning needs and plan and implement their own learning. Individuals with lower scores can increase their skills with practice.

Reliability and Validity. The reliability and validity of the SDLRS have been supported by a number of studies in which it has been used since its development in 1977 (Brockett, 1985). However, it remains a topic of conjecture as some adult educators (Bonham, 1988; Brockett, 1985b; Crook, 1985; Field, 1989, 1990; Long, 1987; Long & Agyekum, 1983) continue to debate its merit.

In an attempt to further investigate the validity of the SDLRS, Long and Agyekum (1983) examined the effects of cultural differences by comparing SDLRS scores of blacks and whites, and explored the association between instructor perceptions of self-direction in learning and scores on the SDLRS. Results of their research support the validity of the SDLRS despite the absence of an association between faculty ratings and student performance (p. 86). Significant differences were found in faculty ratings according to race and student scores, however, the researchers did not consider the SDLRS to be lacking in reliability or validity in this instance. Other findings which Long and Agyekum (1983) considered to be in support of

the validity of the scale were significant associations between SDLRS scores and variables such as age and educational level.

Crook's (1985) study to investigate the predictive validity of the SDLRS determined that although there was a significant correlation between SDLRS scores and first-year final subject grades in a nursing course as well as between SDLRS scores and peer nomination scores, it only accounted for seven and eight percent of the variance. It was therefore not considered educationally meaningful or predictive.

Issues of internal consistency and content validity were raised by Brockett (1985). Problems encountered in administering the SDLRS to a sample of older adults with low educational attainment resulted in his questioning the appropriateness of using the tool for adults who "have spent little or no time in school" (p. 21). Guglielmino's (1977) reliability coefficient of .87 was duplicated in this study (p. 19).

The meaning of low scores on the SDLRS was considered by Bonham (1991). Her discussion centred around an exploration of some of the items on the inventory, the process of the instrument development, factor analysis of the tool, and correlation of SDLRS scores with educational attainment. As opposed to a low readiness for self-directed learning, she postulated that low SDLRS scores may in fact represent a dislike of any kind of learning.

### Nursing Survey

The Nursing Survey addressed items such as age, type of nursing program graduated from, level of formal education (both nursing and non-nursing), area of clinical practice and number of years in that area, as well as involvement in continuing nursing education.

Reliability and Validity. The questionnaire was tested for content validity by having six nurse managers and nurse educators review the form. Most of the items on the questionnaire required the respondent to place an X or check mark in the appropriate box or supply a word or number about their nursing practice. Inter-item correlations (see Chapter 4) support the internal consistency or reliability of this instrument.

Although a great deal of demographic data have been collected about registered nurses and continuing education, most of it is American. The information obtained through this research will be valuable for its applicability to Canadian nurses.

### **Procedure**

Prior to beginning the data collection, approval was obtained from the Research and Ethics Committees at both hospitals and at Brock University. Support was obtained from the directors of nursing at both hospitals. In addition, the nursing unit managers were contacted by letter to explain the research and to request their assistance in randomly distributing the packages of questionnaires to 20 nurses on their unit. On units where there were less than 20 registered nurses on staff, the maximum number distributed was determined by the number of nurses employed on the unit. A covering letter accompanied each individual package of questionnaires which explained the purpose of the study, the commitment required by participants (i.e., the time required to complete the questionnaires), provided instructions on how to return the completed questionnaires to the researcher, and assured participants of their anonymity. Participants were requested to return the completed packages within two weeks to the researcher's mailbox via interdepartmental mail.



At the end of the initial two-week data collection period, follow-up notices were sent to all nurses via hospital electronic mail (for those units on-line) or via nurse managers, reminding those who had received a package of questionnaires and who intended to participate in the study to return the completed packages within the week. A similar notice was sent out at the end of the third week. The data collection period then totalled four weeks.

Each package of questionnaires included the PET Type Check, the Kolb Learning Style Inventory, Guglielmino's Self-Directed Learning Readiness Scale (SDLRS), and the Nursing Survey.

In order to maintain anonymity, yet to be able to compare results on each questionnaire with responses on the demographic data sheets, each package of questionnaires was numerically coded. The significance of the codes was known only to the researcher.

### **Statistical Analysis**

The completed questionnaires were analyzed in the following manner: Each respondent's psychological type, learning style and score on the SDLRS was determined by the use of existing scoring procedures for each tool. Descriptive statistics were calculated for each variable and for each result. Results of the Nursing Survey were coded and analyzed. Descriptive statistics were calculated for each question.

Correlational analyses were performed to identify relationships among variables. Cross-tabulations were conducted between demographic variables, individual characteristics, and continuing education participation. Results of the descriptive, cross-tabulations and correlational statistical analyses are presented in Chapter 4.

### **Limitations of the Study**

A number of limitations of this study must be acknowledged. The sample size of 154 respondents is in fact too small for the results to be generalizable to the nursing population of Ontario at large. Any correlations or trends identified must be viewed with a degree of caution and can be considered topics worthy of further research with larger samples.

The fact that participants responded voluntarily to the survey is another source of limitation for this study. It raises the question of whether or not the respondents differ in some way (and then, how?) from the nonrespondents.

The length of the package of questionnaires may have resulted in a smaller sample size. Many nurses may have decided against participating simply as a result of the time involvement required to complete all four questionnaires.

Another limitation is the geographic locations of the hospitals. It is possible that there are cultural norms at each of the hospitals which could influence the nurses' thinking or beliefs regarding continuing education. If this is so, it may be possible that results on the SDLRS and for the participation in continuing education have been affected.

The current economic climate in the province may also be a factor which has affected the results of this research. Nurses, like many others, have a very real fear of job loss through government cutbacks and hospital downsizing. As a result, morale is poor in many hospitals. This may affect nurses' willingness to participate in research studies, and may also affect their participation in continuing education, or even influence their attitudes towards self-directed learning.

Additionally, the use of self-report instruments may cause participants to answer favourably in order to present a positive image. It is hoped that this is reduced by anonymous

responses and therefore there is no fear of judgement. Fatigue of respondents may be another factor. Participants may have answered mid-range on the questionnaires due to fatigue or response set (tendency to consistently express attitudes of an extreme response or a mid-range response).

Each of these limitations must be taken into account when reviewing the results of this study, and should also be of consideration in future research regarding these topics.

## **CHAPTER FOUR: RESEARCH FINDINGS**

Results of the study are presented in this chapter. An overview of the descriptive statistics, the correlational analyses, and the cross-tabulations are included.

This correlational study began with the distribution of a total of 320 packages of questionnaires to registered nurses at two hospitals as described in Chapter 3. At Waterview Hospital, a total of 146 packages were distributed among eight clinical areas, with a total response rate of 71. A total of 174 packages of questionnaires were distributed among nine different clinical areas at Cityview Hospital, with 83 completed and returned. This resulted in a 48.6% response rate at Waterview Hospital, and a 47.7% response rate at Cityview Hospital, or an overall response rate of 48%.

The intention was to distribute 20 packages of questionnaires among each identified unit, but the actual number of staff employed on some of the smaller units limited the number of packages which could be distributed. The clinical areas surveyed at Waterview Hospital were: Pediatrics, Surgery, Obstetrics, Emergency, Chronic Care, Operating Room and Recovery Room, Psychiatry, and Intensive Care. The same eight areas were surveyed at Cityview Hospital, and in addition a Cardio-respiratory Care Unit was included because the patients cared for in this unit and in the Intensive Care Unit at this hospital were similar to those cared for in the combined Intensive Care Unit at Waterview Hospital.

The majority of questionnaires which were returned were completed properly and in their entirety. A small number of respondents failed to complete one of the questionnaires, and these were coded according to the scoring procedures of the particular tool in order to maximize the amount of useful data. Two questionnaires were returned, incomplete and with

comments written across the front stating that the questionnaires were too long to complete.

Basic descriptive statistics were calculated on each of the variables. The results are as follows.

### **Characteristics of the Sample**

All of the registered nurses surveyed at Waterview Hospital were female, and all but two were female at Cityview Hospital. Thus, greater than 98% of the sample was female.

Table 1 lists the mean age (in years), the mean number of years worked in nursing and in the current clinical setting as well as the standard deviations.

The nurses sampled in this survey had a mean of 1.7 children each, with a range of zero to six children, and a standard deviation of 1.2.

Frequency distributions for marital status, employment status and educational background are presented in Tables 2 and 3.

**Table 1****Mean Age, Number of Years Worked in Nursing and Number of Years Worked in  
Current Area of Clinical Practice**

n=154

Variable	Mean	S.D.
Age	40.2	9.22
Years worked in nursing	17.5	8.79
Years worked in current setting	13.4	10.59

**Table 2****Frequency Distribution of Nurses' Marital Status**

n=154

Marital Status	Frequency	Percent
Single	18	11.7
Married	117	76.0
Divorced	16	10.4
Widowed	3	1.9

**Table 3****Frequency Distribution of Nurses' Employment Status**

n=154

Employment Status	Frequency	Percent
Full-time	95	61.7
Part-time	42	27.3
Casual	17	11.0



At the time the study was conducted, there were 182 full-time and 240 part-time nurses employed at Waterview Hospital and 402 full-time and 432 part-time nurses employed at Cityview Hospital, thus the percentage of full-time respondents is higher than the actual percentage of nurses employed full-time at the hospitals. The reason for this may be that on the days that the questionnaires were distributed, more full-time nurses may have been working, based on their regular shift rotations. While the number of full-time staff at both hospitals was essentially equivalent (59.2% at Waterview Hospital and 63.9% at Cityview Hospital), 38% of respondents classified themselves as part-time and less than three percent as casual at Waterview Hospital, but at Cityview Hospital, 18% were part-time and 18% were casual. This difference may be due to relatively recent reclassifications of part-time and casual staff at Waterview Hospital as a result of union activity and impending changes to staffing due to budget cuts.

The educational preparation of all respondents combined is presented in Tables 4 and 5. By comparison, the College of Nurses of Ontario (verbal communication, Feb., 1996) data shows that 14.4% of nurses in Ontario held a degree in nursing in 1994 (the most recent data available), and 18% of Ontario nurses stated that their highest level of education in nursing was either a baccalaureate, master's or PhD.

**Table 4****Basic Nursing Preparation**

n=154

Education	Frequency	Percent
Hospital	19	12.3
Diploma	116	75.3
Degree	19	12.3

**Table 5****Frequency Distribution of Highest Degrees Held by Respondents**

n=154

Nursing Degree	Frequency	Percent
No response	1	0.6
Diploma	129	83.8
Baccalaureate	23	14.9
Masters	1	0.6
<hr/>		
Non-Nursing Degree	Frequency	Percent
None	150	97.4
Baccalaureate	3	1.9
Masters	1	0.6

More than twice as many nurses at Waterview Hospital listed hospital training as their basic nursing training (18%), compared to Cityview Hospital (7%). Three nurses at Waterview Hospital held a degree in nursing (4%) as their basic nursing preparation, compared to 16 nurses (19%) at Cityview Hospital. Numbers were essentially the same for highest degree held in nursing, and at Cityview Hospital one nurse had a Master's degree in nursing.

In total, 44 nurses (28.6%) stated that they were working on a course, diploma, certificate or degree, while 110 (71.4%) were not. Twice as many respondents at Cityview Hospital (37%) were working on some form of formal continuing education compared to Waterview Hospital (18%). Sixty-five nurses (42.2%) indicated that they held a specialty certificate, 88 (57.1%) did not, and one person did not respond to the question.

Ninety-four (61%) respondents stated that they possessed other qualifications which may include such things as completion of courses for Advanced Cardiac Life Support or exams for other programs which results in obtaining a specific qualification. The majority of respondents with other qualifications were found at Cityview Hospital (80% versus 39%).

A difference was found between hospitals regarding the number of years experience in the current clinical setting. More nurses at Cityview Hospital had one to five years of experience in their current area, and more nurses at Waterview Hospital had greater than 20 years of experience in their current setting. Membership in professional organizations is reported in Table 6. All nurses at Waterview Hospital belong to the Ontario Nurses Association (ONA) (the provincial union for registered nurses) because it is a union hospital, whereas Cityview Hospital is not a union hospital, therefore these nurses do not have automatic inclusion in a professional organization. Membership of nurses in professional associations at Cityview Hospital is strictly voluntary. Inclusion of membership in ONA may in fact have

skewed the results of this question.

### **Participation Rates in Continuing Education**

Surprisingly, 61% of respondents reported that they do not subscribe to nursing journals. Twenty-seven percent indicated that they subscribe to one nursing journal, and the remaining 12% subscribe to two to five journals. Although some nurses do not have their own subscriptions to journals, they stated that journals were available on their nursing units and they used them at work. The journal reading habits of the respondents is outlined in Table 7.

Nearly one-third (27.9%) of respondents reported that they do not spend any time reading nursing journals, while approximately one-half of respondents (51.3%) reported that they spend two to four hours per month reading nursing journals. One individual reported spending 50 hours per month in this activity, but she stated that she is a full-time student and works part-time. Overall, the average amount of time spent reading nursing journals was 3.2 hours per month with a standard deviation of 5.29.

**Table 6****Membership in Professional Organizations**

n=154

Number of Organizations	Frequency	Percent
0	33	21.4
1	76	49.4
2	32	20.8
3	11	7.1
4	1	0.6
5	1	0.6

**Table 7****Journal Reading Habits of Nurses****Number of Hours per Month Spent Reading Nursing Journals**

n=154

Number of hours	Frequency	Percent
0	43	27.9
1	22	14.3
2	25	16.2
3	20	13.0
4	12	7.8
5	7	4.5
6	8	2.6
8	4	2.6
10	7	4.5
12	2	1.3
20	3	1.9
50	1	0.6

**Table 8****Summary of Participation in Continuing Education Activities**

n=154				
Continuing Education Activity	Mean # of times in past year	S.D.	Max.	Min.
Reading professional journals	8.2	12.43	52	0
Inservices	6.9	6.82	52	0
Credit courses	0.3	0.95	6	0
Non-credit courses	0.2	0.63	3	0
Videos	2.1	3.20	12	0
Workshops	1.2	2.16	16	0
Conferences	1.2	2.06	12	0
Reference texts	1.4	3.99	25	0
Informal discussion/study group	1.6	4.47	26	0
Other	0.1	1.13	12	0



The most popular forms of continuing education among the respondents in this study were journal reading and attending inservices. The least favoured continuing educational activities were attending credit and noncredit courses. Overall the results for participation in continuing education activities were similar for both hospitals. Significant differences were noted only for the number of times respondents referred to reference texts and number of times nurses participated in informal discussion or study groups. Approximately 70 percent (69%) of nurses at Waterview Hospital stated that they had not referred to a reference text at all in the last year, compared to 50% of nurses at Cityview Hospital. Despite the difference, both sets of results are striking. At Waterview Hospital, 68% of nurses had not participated in any informal discussion or study groups in the last year, compared to 47% making the same statement at Cityview Hospital.

### **The Self-Directed Learning Readiness Scale**

Results of the Self-Directed Learning Readiness Scale are contained in Table 9. The mean is only slightly higher than is reported in the standardization of the instrument and the standard deviation is comparable.

Using the same categories as Guglielmino (1977), the frequency distribution for the SDLRS scores is as indicated in Table 9. Scores of 177-201 suggest below average readiness for self-directed learning, 202-226, average readiness, 227-251, above average, and 252-290, high readiness for self-directed learning. (Guglielmino, 1977). The majority of nurses in the study scored in the average to above average categories.

**Table 9****Frequency Distribution of Scores on the Self-Directed Learning Readiness Scale**

n=151

Score Range	Number	Percent
177-201	33	21.4
202-226	45	29.2
227-251	53	34.4
252-290	20	13.0

Note:            Mean = 222.7            Standard Deviation = 25.10

### **The Kolb Learning Style Inventory**

In Table 10, the overall results for the individual components of the Kolb Learning Style Inventory are presented, as well as the overall results of preferred learning styles.

Kolb found that nurses tended to have a converger learning style (1979, p. 553), yet the results of this study suggest that this is the least preferred learning style among the nurses in this sample.

**Table 10****Descriptive Statistics, Learning Styles**

Variable	Mean	Standard Deviation
Concrete Experience	15.7	3.81
Reflective Observation	13.7	3.79
Abstract Conceptualization	15.0	4.09
Active Experimentation	16.3	3.78
Learning Style	Frequency	Percent
Accommodator	56	36.4
Diverger	51	33.1
Assimilator	23	14.9
Converger	20	13.0
missing cases	4	2.6

Note: (n=154)

### **The PET Type Check**

The mean scores and standard deviations of the eight psychological type variables are listed in Table 11. The eight types are extraverted thinking (ET), extraverted feeling (EF), extraverted sensing (ES), extraverted intuitive (EN), introverted thinking (IT), introverted feeling (IF), introverted sensing (IS), and introverted intuitive (IN). The means for all the extraverted functions and for introverted thinking were lower, and for introverted feeling and introverted intuition they were higher for this sample, compared to the standardization means for the instrument. All of standard deviations obtained for this sample were smaller than those of the standardization results.

An individual's psychological type is reported as a dominant function and an auxiliary function. Frequency distributions of the dominant and auxiliary functions of the nurses in this study are reported in Table 12.

The results of the psychological type test were very different than expected. Cranton (verbal communication, 1991) reported that most often nurses have an extraverted sensing or extraverted feeling type. Contrary to this, the results of this study identified the two most common psychological types among nurses as being extraverted thinking and introverted intuitive.

**Table 11****Means and Standard Deviations for the Psychological Type Variables**

n=153

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Psychological Type	Mean	Standard Deviation
ET	35.9	11.07
EF	23.5	10.93
ES	32.4	9.93
EN	34.9	10.15
IT	24.0	9.41
IF	31.1	9.21
IS	23.2	9.33
IN	31.9	11.83

---

**Table 12****Frequency Distributions of Dominant and Auxiliary Functions**

n=153

Dominant	Freq.	%	Auxiliary	Freq.	%
no response	1	0.6	no response	1	0.6
ET	53	34.4	ET	35	22.7
EF	4	2.6	EF	4	2.6
ES	16	10.4	ES	15	9.7
EN	32	20.8	EN	11	7.1
IT	2	1.3	IT	4	2.6
IF	8	5.2	IF	30	19.5
IS	2	1.3	IS	24	15.6
IN	36	23.4	IN	27	17.5

### **Cross-tabulations with Demographic Variables**

Results of cross-tabulations with demographic variables with a significance of  $<.05$  are presented next. Significant findings for differences between hospitals in the demographic and continuing education data were discussed as part of the general characteristics of the sample.

Scores on the Self-Directed Learning Readiness Scale differed significantly between hospitals as shown in Table 13. More nurses at Waterview Hospital had scores in the below average category while approximately 50% more nurses at Cityview Hospital scored in the average to above average categories for readiness to be a self-directed learner.

Significant differences were found using Chi square for learning style across hospital as illustrated in Table 14. More nurses at Cityview Hospital had a preference for the accommodator learning style while the diverger style was preferred by more nurses at Waterview Hospital. Both of the preferred learning styles share a tendency to use concrete experience. Divergers also draw on reflective observation whereas accommodators use active experimentation.



**Table 13****Differences in SDLRS Scores Between Hospitals**

n=151				
SDLRS Score	Waterview Hospital		Cityview Hospital	
	n	%	n	%
177-201	24	15.6	9	5.8
202-226	13	8.4	32	20.8
227-251	24	15.6	29	18.8
252-290	8	5.2	12	7.8

**Table 14****Differences in Learning Style Preferences Between Hospitals**

<b>Learning Style</b>	<b>Waterview Hospital</b>		<b>Cityview Hospital</b>	
	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Accommodator	18	11.7	38	24.7
Diverger	32	20.8	19	12.3
Assimilator	11	7.1	12	7.8
Converger	8	5.2	12	7.8

### **Results of Correlational Analyses**

Correlational analyses were conducted among all variables. Table 15 illustrates the results of the correlation matrix for demographic data and continuing education activities. Significant positive correlations were found for three combinations of demographic and continuing education data which were significant at  $p < .01$ . They were: use of reference texts correlated with reading professional journals, participating in informal discussion or study groups correlated with attending inservices, and participation in informal discussion or study groups correlated with watching videos.

Twelve correlations were significant at  $p < .001$ . Each of these correlations was positive. They are:

- age with number of years in nursing,
- age with number of years experience in current clinical setting,
- number of years in nursing with number of years of experience in current clinical setting,
- number of hours per month spent reading journals and reading journals as a continuing education activity,
- attendance at credit courses with number of hours per month spent reading journals,
- attendance at informal discussion or study groups with reading journals as a continuing education activity,
- watching videos with attendance at conferences,
- watching videos with use of reference texts,
- attendance at workshops with participation in informal discussion or study groups,
- attendance at conferences with participation in informal discussion or study groups,

- attendance at conferences with use of reference texts,
- use of reference texts with participation in informal discussion or study groups.

The correlation matrix for learning styles with psychological type is displayed in Table 16. The active experimentation stage of the learning cycle was negatively correlated with extraverted feeling types and was significant at  $p < .01$ .

Table 17 is the correlation matrix for learning style with self-directed learning readiness (SDLR). There are three significant correlations noted. Abstract conceptualization is positively correlated with SDLR and is significant at  $p < .001$ . Reflective observation is negatively correlated with SDLR with significance at  $p < .001$ . Concrete experience is negatively correlated with SDLR with significance set at  $p < .01$ .

The correlation matrix for psychological type with self-directed learning readiness is displayed in Table 18. There are two significant results at  $p < .001$ , and one at  $p < .01$ . Extraverted feeling, extraverted thinking, and introverted intuitive were each positively correlated with SDLRS score.

Table 15

Correlation MatrixFor Demographic Data and Continuing Education Participation

	P1	P12	P14	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27
<b>P1</b>	1.0000													
<b>P12</b>	0.8899	1.0000												
<b>P14</b>	0.5119	0.5941	1.0000											
<b>P17</b>	-0.1137	-0.1150	-0.1180	1.0000										
<b>P18</b>	0.0241	0.0460	-0.0625	0.4584	1.0000									
<b>P19</b>	0.0685	0.0867	-0.0359	0.0171	0.2353	1.0000								
<b>P20</b>	-0.1693	-0.1652	-0.1604	0.2854	0.0137	0.2093	1.0000							
<b>P21</b>	-0.0822	-0.1042	-0.0914	-0.0595	0.1568	0.0224	0.0319	1.0000						
<b>P22</b>	0.1501	0.1588	0.0094	0.0021	0.1695	0.1727	0.2400	0.2230	1.0000					
<b>P23</b>	-0.0275	-0.0498	-0.0884	0.0101	0.2138	0.1136	0.0248	0.0118	0.1898	1.0000				
<b>P24</b>	0.1847	0.1034	0.0254	0.0652	0.1930	0.1322	0.0019	0.0447	0.3505	0.1292	1.0000			
<b>P25</b>	0.0408	0.0645	-0.0950	0.0442	0.3355	0.1846	-0.0123	0.0225	0.5110	-0.0529	0.3550	1.0000		
<b>P26</b>	0.1256	0.1580	-0.0109	0.0746	0.3689	0.2753	0.0631	0.0400	0.3040	0.2670	0.2909	0.3857	1.0000	
<b>P27</b>	-0.0254	-0.0026	-0.0175	-0.0902	0.0031	0.0699	0.0437	0.1964	-0.0297	0.0001	0.0235	-0.0499	0.1746	1.0000

**Legend:**

P1=Age

P12=# of years in nursing

P14=# of years in current setting

P17=Hours per month reading journals

P18=Professional journal reading

P19=Inservices

P20=Credit courses

P22=Videos

P23=Workshops

P24=Conferences

P25=Reference Texts

P26=Informal discussion groups

Significance:  =.01  =.001

Table 16

**Correlation Matrix**

**Learning Styles with Psychological Types**

	AC	AE	CE	RO	EF	EN	ES	ET	IF	IN	IS	IT
AC	1.0000	-0.0651	-0.5247	-0.1930	0.1021	-0.1850	-0.1494	0.0216	0.0180	-0.0064	-0.0059	-0.0877
AE	-0.0651	1.0000	-0.0453	-0.5183	-0.2152	-0.1428	-0.1649	-0.1240	-0.1252	-0.1371	-0.2030	-0.2040
CE	-0.5247	-0.0453	1.0000	0.0919	-0.1513	0.0221	0.1427	-0.0741	0.0205	-0.0841	0.0254	0.0138
RO	-0.1930	-0.5183	0.0919	1.0000	0.1321	0.1874	0.0961	0.0102	0.0027	0.0364	0.1472	0.2043

**Legend:**

AC=abstract conceptualization  
 AE=active experimentation  
 CE=concrete experience  
 RO=reflective observation

EF=extraverted feeling  
 EN=extraverted intuitive  
 ES=extraverted sensing  
 ET=extraverted thinking

IF=introverted feeling  
 IN=introverted intuitive  
 IS=introverted sensing  
 IT=introverted thinking

Significance:



 =.01  
 =.001

Table 17

Correlation MatrixLearning Style withSelf-directed Learning Readiness


---

	SDLRS
AC	0.2752
AE	-0.0661
CE	-0.2360
RO	-0.3111

---

**Legend:**

AC=abstract conceptualization

AE=active experimentation

CE=concrete experience

RO=reflective observation

SDLRS=Self-directed learning readiness scale

## Significance:

 =.01  
 =.001

Table 18

Correlation MatrixPsychological Type withSelf-directed Learning Readiness


---

	SDLRS
EF	0.3411
EN	-0.1000
ES	-0.0201
ET	0.3158
IF	0.1379
IN	0.2179
IS	0.0639
IT	-0.0577

---

**Legend:**

EF=extraverted feeling

EN=extraverted intuitive

ES=extraverted sensing

ET=extraverted thinking

IF=introverted feeling

IN=introverted intuitive

IS=introverted sensing

IT=introverted thinking

SDLRS=Self-directed learning readiness scale

## Significance:

<div style="border: 1px solid black; width: 15px; height: 15px; display: inline-block;"></div>	= .01
<div style="background-color: #cccccc; width: 15px; height: 15px; display: inline-block;"></div>	= .001



### **Research Questions**

This section addresses the results which pertain to the research questions set out in Chapter 3. The first question was "Is there a dominant psychological type among nurses?" The two most common psychological types among the nurses in this sample were extraverted thinking (34.4%), and introverted intuitive (23.4%). There were no significant differences noted between the two hospitals.

The second research question was "Is there a preferred learning style among nurses?" The accommodator learning style was preferred overall, however there were differences noted between the two hospitals. Nurses at Cityview Hospital had a preference for the accommodator learning style (24.7% of the total sample), and nurses at Waterview Hospital showed a preference for the diverger learning style (20.8%).

The third research question was "Do nurses have the potential for self-directed learning?" The majority of nurses (63.6%) scored in the average and above average categories on the SDLRS, therefore suggesting that they are good candidates for self-directed learning.

### **Cross-tabulations with Continuing Education, SDLRS,**

#### **Psychological Type, and Learning Style**

The cross-tabulation of learning style across SDLRS scores showed that approximately one-half of assimilators were in the above average category, otherwise the distribution was even.

Significant results were obtained using Chi square for the cross-tabulation of question 9 of the demographic questionnaire (Are you currently working on a course/diploma/certificate/

degree?) across SDLRS scores. The results are displayed in Table 19.

Results of continuing education activities of journal reading, enrolling in credit courses, watching videos, and reading reference texts were significant across SDLRS scores using Chi square analysis. Tables 20 through 23 illustrate the findings.

Respondents who scored in the average to above average categories of the SDLRS were less likely to be enrolled in a formal credit course.

Four times as many respondents with scores in the high readiness category indicated they participated in watching videos as a continuing education activity compared to those who did not watch videos. A slightly higher number of respondents with above average scores also indicated involvement in this activity.

Table 19

**Differences in SDLRS Scores Between Those Working On or Not Working On a Course**

SDLRS Score	Working on a course ...			
	Yes		No	
	n	%	n	%
177-201	3	2.0	30	19.9
202-226	13	8.6	32	21.2
227-251	20	13.2	33	21.9
252-290	8	5.3	12	7.9

Table 20

**Differences in SDLRS Scores Between Journal Readers and Nonreaders**

SDLRS Score	Journal Reading			
	No		Yes	
	n	%	n	%
177-201	18	11.9	15	9.9
202-226	14	9.3	31	20.5
227-251	10	6.6	43	28.5
252-290	4	2.6	16	10.6

Table 21

**Comparison of SDLRS Scores for Participants and Nonparticipants in Credit Courses****Enrolment in Credit Courses**

	No		Yes	
<b>SDLRS Score</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
177-201	30	19.9	3	2.0
202-226	34	22.5	11	7.3
227-251	37	24.5	16	10.6
252-290	8	5.3	12	7.9

**Table 22****Differences in SDLRS Scores as a Function of Watching Videos**

<b>SDLRS Score</b>	<b>Watching Videos</b>			
	<b>No</b>		<b>Yes</b>	
	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
177-201	18	11.9	15	9.9
202-226	23	15.2	22	14.6
227-251	20	13.2	33	21.9
252-290	4	2.6	16	10.6



### **Correlations with Continuing Education, SDLRS, Psychological Type, and Learning Style**

The fourth research question addressed the possibility of any relationships between any of the variables. "Are there relationships among psychological type, learning style, self-directed learning, and participation in continuing education activities?"

Table 24 contains the correlation matrix for learning style with demographic data and continuing education. It shows one positive and one negative significant correlation at  $p < .01$ . Age was positively correlated with the concrete experience stage of the learning cycle. Reading journals was negatively correlated with the reflective observation stage of the learning cycle.

The correlation matrix of psychological type with continuing educational activity shows only one significant positive correlation. Extraverted thinking is correlated with attendance at informal discussion or study groups, and is significant at  $p < .01$ . This is displayed in Table 25.

Table 26 contains the correlation matrix for SDLRS scores with demographic data and continuing education activities. There are five significant results at  $p < .01$ . There were positive correlations for SDLRS scores with each of the following activities:

- number of hours per month spent reading journals
- journal reading as a continuing education activity
- attending credit courses
- watching videos
- using reference texts



A number of interesting results have emerged from this study. Differences between hospitals for learning style preference, scores on the SDLRS, and for participation in some continuing education activities were revealed. Several relationships among the variables of self-directed learning, learning style, psychological type, and participation in continuing education were identified, although some trends which may have been expected were not evident in this sample population. Discussion of the results is found in Chapter 5.

Table 24

**Correlation Matrix****Learning Styles with Demographic Data & Continuing Education**

	P1	P12	P14	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27
AC	-0.0837	-0.1065	0.0051	0.1032	0.1054	0.0236	0.0931	0.0652	0.1356	-0.0180	-0.0983	0.0681	-0.1212	-0.0532
AE	-0.0669	-0.1111	-0.1513	-0.0685	0.0801	0.0930	-0.1685	-0.0588	0.0216	0.1549	-0.0011	0.0007	0.0608	0.0702
CE	0.2103	0.1861	0.1131	-0.1880	-0.1252	-0.1498	-0.0913	0.0708	0.0381	0.0225	0.1343	0.0182	0.0906	0.0304
RO	0.0825	0.1703	0.1270	-0.0634	-0.2563	-0.1095	0.0983	0.1102	-0.1810	-0.0353	-0.1969	-0.2165	-0.1254	0.0043

**Legend:**

AC=abstract conceptualization

AE=active experimentation

CE=concrete experience

RO=reflective observation

P1=Age

P18=Professional journal reading in previous year

Significance:

□ =.01  
 ■ =.001

**Table 25**

**Correlation Matrix**

**Psychological Type with Continuing Educational Activity**



	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27
<b>EF</b>	-0.0247	0.1667	0.0974	0.0456	0.0367	0.1118	-0.0691	0.0196	0.1587	-0.0208
<b>EN</b>	-0.1216	0.1205	-0.1321	-0.1092	-0.1462	0.0128	-0.1726	-0.0737	-0.0281	-0.0835
<b>ES</b>	-0.0813	0.0776	-0.0054	-0.0366	-0.0431	0.0935	-0.0704	-0.0163	0.0972	-0.0311
<b>ET</b>	0.0331	-0.0117	0.0827	-0.0062	0.0535	0.1592	-0.0594	0.1008	0.2794	0.0702
<b>IF</b>	0.0431	0.0449	0.0244	-0.0388	-0.0476	-0.0544	-0.0827	-0.0734	-0.0609	-0.0865
<b>IN</b>	0.0309	0.0965	-0.0056	-0.0582	0.0906	0.0974	0.0017	0.1088	0.1520	-0.0381
<b>IS</b>	-0.1654	0.0661	-0.0729	-0.0491	0.0945	0.0575	-0.0678	0.0523	0.1418	-0.0539
<b>IT</b>	-0.0687	0.0089	-0.0671	-0.0872	-0.1318	0.0077	-0.1382	-0.0595	0.0688	-0.0325

**Legend:**

EF=extraverted feeling  
 EN=extraverted intuitive  
 ES=extraverted sensing  
 ET=extraverted thinking

IF=introverted feeling  
 IN=introverted intuitive  
 IS=introverted sensing  
 IT=introverted thinking

**Significance:**

 =.01  
 =.001

P26=Informal discussion / study groups

Table 26

Correlation Matrix

Self-directed Learning Readiness with

Demographic Data and Continuing Education Activities



	P1	P12	P14	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27
SDLRS	-0.1081	-0.1555	-0.0838	0.2635	0.2574	0.2293	0.2356	0.0613	0.2586	0.1054	0.1527	0.2585	0.1768	-0.0777

**Legend:**

P17=Hours per month reading journals  
P18=Professional journal reading  
P20=Credit courses

P22=Videos  
P25=Reference Texts

**Significance:**

 =.01  
 =.001

## **CHAPTER FIVE: DISCUSSION OF RESEARCH FINDINGS**

This study was conducted for the purpose of investigating a variety of factors which may be related to the continuing education efforts of registered nurses. The results of the study were presented in Chapter 4 and will be elaborated upon in this chapter. An overview of the results obtained from the basic descriptive statistical analyses and the significant cross-tabulations will be discussed first. This will be followed by a discussion of the analyses which pertain to the research questions set out in Chapter 3.

### **Response Rate**

The overall rate of return of the questionnaires was 48%. Response rates at both hospitals were equivalent. The length of the package of questionnaires may have been the greatest deterrent to participation. Each package included four instruments to be completed, and the time required for this may have been prohibitive for some nurses working on very busy units. In addition, the morale in most hospitals recently has been low, due to fears of further government cutbacks and job losses. As a result, nurses may not be interested in participating in research studies when they have very real fears of unemployment.

Unfortunately the numbers of responses in each of the clinical areas were too low to be useful in comparing responses from one to another. The results would not have had any real significance or have been generalizable to larger populations.

### **Discussion of Characteristics of Sample**

#### **Demographics**

The descriptive statistics provided information on the characteristics of the sample population as well as overall results for the various instruments used in the study. To

summarize, greater than 98% of the respondents were female. They had a mean age of 40.2 years, had worked a mean of 17.5 years in nursing and had a mean of 13.4 years of experience in their current clinical setting (standard deviation 10.59). They had a mean of 1.7 children with a range of zero to seven. The majority of respondents were married. Most of the nurses involved in this study worked full-time, but one-third worked part-time or were classified as casual staff.

Two recent studies done in southern Ontario (Ofosu, 1993; Powell, 1994) also examined registered nurses in the hospital setting and their participation in continuing education. The demographic results of this study did not differ dramatically from those of Powell or Ofosu. Powell (1994) reported a mean age of 39.7 years, a mean of 15.3 years experience in nursing, and a mean of 8.1 years in the current clinical setting. Ofosu (1993) reported a mean age of 40.1 years for her respondents. The marital status of Powell's (1994) respondents was 70.4% married, 19.9% single, and 9.9% divorced. Ofosu (1993) reported similar numbers: 70.1% married, 14% single, 13.1% separated or divorced, and 2% widowed. Both Powell and Ofosu surveyed staff nurses as well as some nurses working in management or educator positions whereas this study focused on staff nurses.

### Educational Preparation

The majority of nurses participating in this study were diploma prepared, and the remainder were hospital trained or degree prepared. Thirteen nurses reported upgrading their basic education to the diploma level and four nurses had completed a baccalaureate in nursing since completing their basic training. Overall, 14.9% of respondents stated that a baccalaureate in nursing was their highest degree held in nursing. This is consistent with the College of

Nurses of Ontario's (verbal communication, February, 1996) statistics for 1994. The sample of registered nurses used in this study appears to be similar in many respects to other samples in southern Ontario.

A number of differences were found between the two hospitals in the study. More than twice as many nurses at Waterview Hospital stated that their basic training was at the hospital level, compared to respondents at Cityview Hospital. This may be explained by the fact that Waterview Hospital is an older, community hospital where many nurses may have begun their careers a number of years ago when hospital training was popular. These nurses may have stayed at Waterview Hospital because of family commitments in the area. Cityview Hospital opened when the shift was on to move nurses' training out of the hospitals and into community colleges and the new university programs. Additionally, it is a university-affiliated medical centre and may attract nurses with higher levels of basic nursing training or those who wish to upgrade their training. This feature of Cityview Hospital may also explain the higher proportion of nurses with a degree in Nursing who are on staff there, compared to the lower number at Waterview Hospital. Cityview Hospital is also viewed as an excellent setting where one may expect to deal with more complex and challenging clinical and patient situations. Being a university-affiliated teaching centre, it may well attract more nurses who have trained in similar environments in Nursing degree programs.

### Clinical Experience

The number of years of experience in the current clinical setting differed between hospitals as well. Cityview Hospital may attract a large number of staff who are seeking challenging opportunities and who may only work there for a few years before moving

elsewhere to settle. This may be the reason the number of years of experience in the current clinical setting is lower at Cityview Hospital than at Waterview Hospital. At Waterview, nurses may stay for a longer period of time because it is a smaller town and they elect to settle in such an environment, perhaps for family reasons.

### **Significant Correlations Among Demographic Data and Continuing Education Activities**

Strong positive correlations exist for age with number of years experience in nursing, age with number of years experience in current clinical setting, number of years experience in nursing with number of years in current clinical setting, and number of hours per month spent reading journals with journal reading as a continuing education activity. These relationships are as would be expected.

Number of hours per month spent reading journals correlated positively with attendance at credit courses. Nurses attending such courses (especially if they are Nursing courses) are likely doing more journal reading as a result of their course work requirements.

Reading of reference texts is positively correlated with journal reading. Individuals who engage in reading of one source of information may be more likely to use additional sources as well.

Journal reading and participation in informal discussion or study groups are positively correlated. Use of reference texts correlates positively with participation in study or discussion groups as well. These activities may be related because nurses reading journals or texts may then meet to share information learned, or because nurses are meeting and discussing learning needs and then referring to journals or reference texts as a source of information to help meet



the learning needs.

Watching videos and attending inservices are both found to have a positive relationship with the activity of participating in informal discussion or study groups. The educational activities of watching a video or of attending an inservice may both lead to the spontaneous formation of a discussion group after the initial activity. Conversely, the result of being in a discussion or study group may be that the use of a video or attendance at an inservice would follow and build on the learning experience.

Watching videos correlates positively with attendance at both workshops and conferences. Perhaps the videos are shown at these events, or perhaps individuals who enjoy interactive learning experiences such as workshops also enjoy watching videos and therefore participate in both types of activities.

Attendance at workshops and at conferences are both correlated positively with involvement in discussion groups. At events such as conferences and workshops, discussion groups often evolve as a continuation of the learning experience. Additionally, members of study or discussion groups may attend conferences or workshops as a means of meeting a learning need highlighted in the group discussion.

Attendance at conferences has an association with using reference texts. Perhaps those who use texts to facilitate learning also attend conferences as sources of current and in-depth information. Or perhaps attending conferences sparks a new interest or learning need which results in the nurse referring to texts. In general, nurses who pursue learning in one venue also pursue learning using other strategies. There may be no one special method of reaching interested participants.

### Significant Findings for Continuing Education, Course Participation and Other Qualifications

The teaching hospital environment, and a positive attitude toward continuing education may be factors at Cityview Hospital which encourage the nurses in that facility to pursue more formal types of continuing education than do nurses at Waterview Hospital. Twice as many nurses at Cityview Hospital possessed other qualifications, and twice as many were enrolled in a course or a program leading to a certificate, diploma or degree compared to nurses at Waterview Hospital.

### Journal Reading

The journal reading habits of nurses were investigated as one type of continuing education activity. Although it was the most common continuing education activity identified by the respondents, 61% reported that they do not subscribe to nursing journals. Approximately one-third of respondents reported that they do not read journals. Libraries at the hospitals and at the schools of nursing have numerous professional nursing periodicals which may be accessed by staff, and many nursing units subscribe to one or more pertinent journals which staff may use at work. These two sources of journals, as well as borrowing journals from friends, may help explain how this activity can be the most popular continuing education activity noted in this study despite the fact that less than 30% of nurses actually subscribe to a professional journal. Nurses, however, tend not to be frequent or regular users of hospital libraries unless they are enrolled in a course. Journal reading, in the library, by nurses taking courses may help explain the responses obtained for this question. An alternative reason could be that the 43.5% of nurses who reported reading journals from one to three hours per month may do so in more than one session and may have reported this as an activity

participated in more than once a month.

Vaz (1986) reported that 52.7% of respondents in her study spent little or no time reading journals. She analyzed staff nurses' journal reading patterns in relationship to a number of demographic variables but the results did not show any statistically significant differences among the sample. In the sample she surveyed, 75% of nurses subscribed to at least one nursing journal. This higher subscription rate may be a result of mandatory continuing education requirements in the United States. Many journals include tests which may be completed and submitted for continuing education units, thus this may be a common and inexpensive means of meeting such requirements. Results of Ofosu's (1993) study indicated that 56% of nurses had read a nursing journal within the past week.

Reasons why the subscription rate for nursing journals is low may be that nurses believe that subscriptions are too expensive, or they may not have the time to read them due to other commitments such as families.

### Inservices

While reading of professional nursing journals was listed as the most popular continuing education activity, attending inservices was the second most popular. Staff development sessions, or inservices, are popular because they are readily accessible, free, and pertinent to one's clinical practice. Although they may be repeated on other days for other staff members to attend, they are generally not presented on the evening or night shifts, thus staff working these shifts have limited opportunities to attend inservices.

### Least Common Continuing Education Activities

The least commonly pursued continuing education activities identified in this study were credit and noncredit courses. Puetz (1980) and Hough (1981) identified deterrents to continuing education as being factors such as cost, family obligations, and inconvenient times. Fifty-five percent of respondents in Ofosu's 1993 study cited flexible hours and an increase in salary after completion of courses or a degree as an incentive to participate in such activities.

### Reference Texts

A particularly worrisome result was the infrequency with which nurses indicated that they referred to reference texts. Sixty-nine percent of nurses at Waterview Hospital and 50% of nurses at Cityview Hospital indicated that they had not referred to a reference text within the previous year. Such texts are generally readily available on all nursing units and are most often specific to the types of patients treated on the unit. The types of books included in this category may be drug reference manuals, patient care manuals for specific disease entities, and policy and procedure manuals, to name a few. Considering the number and frequency of changes which occur in the field of health care in a short period of time, it is surprising that nurses are not referring to reference texts with greater frequency. Reasons for this may be lack of time while at work, the belief that some texts are obsolete for some of the newer information which may be required, or the fact that other sources of information are accessed, for example, a pharmacist rather than a drug manual. Contrary to the results obtained in this study with respect to use of reference texts, an American study by Kathrein (1981) showed that reading was a predominant resource for the nurses in her study and that the learning materials were obtained from resources within the workplace.

### Informal Discussion or Study Groups

Informal discussion or study groups were not participated in by the majority of nurses in this study. Sixty-eight percent of nurses at Waterview Hospital and 47% of nurses at Cityview Hospital had not participated in such activities in the past year. Kathrein (1981) noted that nurses predominantly use informal discussion with peers as a learning resource. One reason why more nurses at Cityview Hospital did participate in such groups may be the fact that physician rounds are done on a more formal and organized basis at this hospital and nurses are able to participate in this activity. Rounds typically involve the discussion of patients and their treatments and progress. Such discussions often digress into teaching and learning sessions on some aspect of the patient's condition or treatment. A nurse participating in rounds may therefore have an opportunity to learn something new.

The College of Nurses of Ontario (1988) states that "the registrant is responsible for achieving and maintaining professional competence" (p. 7). They suggest that this may be accomplished by "using a variety of resources and selecting appropriate activities" (p. 7). Results of this study suggest that many registered nurses do not pursue continuing education activities. While some nurses avidly pursue such activities, others expend little or no effort in an attempt to maintain or expand their competence.

## **Discussion of Findings Related to the Research Questions**

### Psychological Types

The first research question of interest in this study was whether or not a dominant psychological type exists among nurses. The PET Type Check (Cranton & Knoop, 1995) was used to investigate this factor. The most common dominant psychological types which were

identified among the sample population were: extraverted thinking (34.4%), introverted intuitive (23.4%), followed by extraverted intuitive (20.8%). The most predominant auxiliary functions among this sample were: extraverted thinking (22.7%), introverted feeling (19.5%), and introverted intuitive (17.5%). These results were very different than expected. Myers (1980) reported that the most common psychological types among nurses were extraverted feeling and extraverted sensing. The characteristics of the extraverted feeling types are those which one would expect to find among nurses. Extraverted feeling types value a happy and harmonious environment, enjoy being with others, are sensitive to the needs of a situation, are able to resolve conflicts, enjoy social gatherings, and make decisions based on culturally accepted values and feelings (Cranton & Knoop, 1990). Extraverted sensing types also display numerous characteristics which would be expected and valued in nurses. They pay attention to all things in the environment, make decisions based on concrete facts and actual experiences, are well-adjusted to reality, they are neat and punctual and others enjoy being around these individuals (Cranton & Knoop, 1990).

Conversely, extraverted thinking types may be seen as cold, unfriendly, impersonal, and materialistic. They have strong principles and judge everything and everyone around them according to these principles. They may be considered narrow-minded, idealistic, and may be unaware of their effect on others. Their world is ordered and clear, and their thinking is generally positive, productive, creative, and progressive (Cranton & Knoop, 1990).

Jung (1962) found that more women were feeling types and more men were thinking types. He believed that women tended to learn the thinking behaviours because of societal pressures. Therefore, if throughout their careers, the nurses in this sample have acquired some of the characteristics of the thinking types, it may explain why extraverted thinking surfaced as

the most common psychological type among this sample population. If this were the case, one would still expect to see sensing (or feeling, for those with intuitive dominant functions) as the auxiliary function because it would still be a part of their psychological makeup which would be less likely to be affected by society and would be useful in the nursing profession. Jung (1962) stated that one's psychological type should remain constant throughout one's life, suggesting that it is more of an innate characteristic as opposed to an acquired one. Although the environment may affect how one responds and reacts (e.g., learned behaviours associated with thinking types as opposed to feeling types due to societal pressures) the individual's psychological type should not change.

Introverted intuitive types are the least common of the eight types described by Jung (1962) yet they account for the second most common psychological type in this sample. One way of explaining this may be that the questionnaire packages were of interest to individuals of this type and therefore they tended to be the ones completing and returning them. However, this still means that an unusually large number of individuals with the introverted intuitive psychological type were present in the populations at the two hospitals for so many of them to actually receive and return the questionnaires. Introverted intuitive types tend to live in a world of inner images, can see potential in many things, and may be described as daydreamers. They are frequently misunderstood, are forgetful, tend to neglect ordinary physical needs and the environment, and do not have a grasp of moral issues. Such a psychological type does not seem suited for the professional role of nursing, thus it is surprising that it was so prevalent among the sample population. Perhaps the nurses sampled in this study are not a true representation of common psychological types among nurses. There are no environmental factors which would contribute to such an unusual distribution of types among this population.

The benefit of knowing the psychological types of a particular group, especially for a group of learners, would be that the facilitator (the individual assisting the learners) may be aware of specific characteristics of the learners which would have an impact on how best to plan and deliver educational material. Although one would be unlikely to find a completely homogeneous group of people with similar psychological types even within one occupational field, if the majority of individuals in such a group were known to share similar psychological types then a great deal of information would be known about many of the members of the group. This information could be of value to educators and would assist them in planning appropriate continuing education activities for such a group.

### Learning Styles

The second research question in this study was whether or not there is a preferred learning style among nurses. Overall results for the two hospitals in the study listed the accommodator learning style (as described by the Kolb Learning Style Inventory (1979) in Chapter 2) as the most common, with 36.4% of respondents favouring it. This was closely followed by the diverger learning style which 33.1% of nurses preferred. This differs from Kolb's original (1984) research which found that nurses prefer the converger learning style. The number of respondents, however, that he used for this categorization was limited. Later research and a revision of the Learning Style Inventory resulted in a larger number of nurses being surveyed and it was determined that their learning style preference is that of accommodator. Results of this study concur with Kolb's revised classification of nurses as accommodators.

Convergers rely on the learning abilities of abstract conceptualization and active



experimentation. Their greatest strengths lie in problem solving, decision making and the practical application of ideas (Kolb et al., 1984). These individuals tend to perform best when there is a single correct answer or solution. They have control over expression of their emotions and prefer dealing with technical tasks and problems as opposed to social and interpersonal issues. Although their ability to solve problems and make decisions and to control their emotions would be beneficial in the nursing profession, the preference for dealing with technical tasks rather than interpersonal situations is contrary to the image people have of nurses as being kind, caring and compassionate. The original classification of nurses as convergers therefore did not seem to fit with the traits that nurses are most often believed to possess. Nevertheless, there are nurses whose preferred learning style is the convergent style. Kolb (Kolb et al., 1984) emphasizes that the scores obtained on the Learning Style Inventory only indicate which modes of learning the individual tends to prefer in general, and that it "may change from time to time and situation to situation" (p. 34).

When learning style preferences were examined between hospitals, it was found that more nurses at Waterview Hospital preferred the diverger style while the accommodator learning style was preferred by more nurses at Cityview Hospital. Both learning styles share a preference for using concrete experience as one method or stage of learning. Divergers also use reflective orientation while accommodators make use of active experimentation. Strengths of the diverger are the ability to view concrete situations from many perspectives and to brainstorm. They are imaginative and emotional, are interested in people, cultural events and enjoy the arts. Kolb (Kolb et al., 1984) states that this learning style is characteristic among counsellors, organizational development specialists, personnel managers, and those with a background in the humanities.

The accommodator's strengths are in doing things, carrying out plans, and being involved in new experiences. They tend to be risk-takers, can readily adapt to new circumstances, rely on others for information, and solve problems in a trial-and-error manner. They are generally comfortable with others and can be found in action-oriented jobs.

There are many features of both the diverger and the accommodator learning styles which would serve nurses well. Nurses working in a larger, busier, more acute care type of setting may well demonstrate a preference for the accommodator learning style as they would be required to be able to easily adapt to changes. A teaching hospital environment, such as at Cityview Hospital, tends to be busier than a community hospital such as Waterview Hospital. Thus nurses working in a fast-paced environment would learn to adapt to changes and would find themselves with ample opportunity to use the learning skills of the accommodator. Working in such an environment may encourage the nurse to develop more of their active experimentation skills. Kolb states (Kolb et al., 1979) that "learning experiences congruent with learning styles tend to positively influence the choice of future learning and work experiences that reinforce that particular learning style" (p. 556).

#### Self-Directed Learning Readiness

The third research question in this study was "Do nurses have the potential for self-directed learning?" Scores on the Self-Directed Learning Readiness Scale were used to determine this. The majority of nurses (63.6%) scored in the average to above average categories on this instrument, suggesting that they believe themselves to possess the skills and attitudes associated with self-direction in learning. Self-directedness is a particularly valuable characteristic for individuals to develop, especially in a field such as health care where changes

and advances occur regularly and rapidly. An individual with a propensity to be self-directed in his or her learning will be better able to meet his or her learning needs and therefore stay abreast of changes to maintain competence.

Significant differences were noted for the cross-tabulation of SDLRS scores across hospitals. Nearly three times as many individuals at Waterview Hospital were in the below average category as at Cityview Hospital. The reverse was true for the average category where twice as many nurses from Cityview Hospital had scores in this range as at Waterview Hospital. There were also more nurses in the category of high readiness for self-directed learning at Cityview Hospital than at Waterview Hospital. These differences may be a result of environmental factors. There is greater encouragement and recognition given at Cityview Hospital for behaviours which display self-direction and motivation. As well, nurses are encouraged to participate in educational endeavours more so at Cityview Hospital. An environment which fosters self-direction may well contribute to the development of such skills in the individuals working there. In fact, Guglielmino (1989) states that "readiness for self-directed learning is a developable capacity in normal individuals to some extent" and that "readiness for self-directed learning exists along a continuum and is present in each person to some degree" (p. 236). Brockett (1985) suggests that the environment in which self-directed learning takes place has not been explored as much as some other aspects. The results of this study suggest that the environment may influence self-directedness. Further study of this aspect may support or refute this finding.

### **Relationships Among the Variables of Psychological Type, Learning Style, Self-Directed Learning Readiness, and Continuing Education Activities**

The fourth research question in this study was "Are there relationships among psychological type, learning style, self-directed learning readiness and participation in continuing education in the nursing population?" A number of significant correlations were identified between these factors and are now discussed.

#### Learning Style with Continuing Education

Only one significant correlation exists between learning styles and continuing education participation. A negative correlation exists for the reflective observation stage of learning with the continuing education activity of reading journals (-0.25). A positive correlation would have been expected between these two factors. The activities associated with reflective observation are: understanding ideas and situations from different perspectives, the use of patience, objectivity and careful judgement and a reliance upon one's own thoughts and feelings to form opinions. Such activities would be used in reading articles in periodicals, evaluating the usefulness of the information and making a decision about the value of the article in one's own practice.

#### Learning Styles with Psychological Type

A negative correlation exists between the active experimentation stage of the learning cycle and the extraverted feeling psychological type (-0.21). This is reasonable based on the fact that active experimentation involves risk-taking and influencing people and events through action. Such activities may not contribute to the harmonious environment the extraverted

feeling type values. Cranton and Knoop (1990) in their discussion of types and learning styles suggest that extraverted feeling types enjoy interactive learning situations, but that they also bring harmony and empathy to the learning process and will adjust their feelings to what the group values.

No significant correlations were found to exist between the other preferred learning styles and psychological type.

#### Learning Styles with Self-Directed Learning Readiness

The only positive correlation between these variables is between the abstract conceptualization stage of the learning cycle and scores on the self-directed learning readiness scale (SDLRS). Negative correlations exist for concrete experience and SDLRS scores as well as for reflective observation and SDLRS scores.

Caffarella and O'Donnell (1987) refer to two studies which investigated relationships between learning style and self-directed learning. In one 1982 study by Deroos, (cited in Caffarella & O'Donnell, 1987) it was found that the abstract learning style was related to persistence in self-directed learning. The second study determined that the majority of successful self-directed learners were accommodators (Theil, 1984, cited in Caffarella & O'Donnell, 1988). Surprisingly, no significant relationships were found between learning styles and self-directed learning in this study. Since both learning style and readiness for self-directed learning can be influenced by environment and experiences, and the two hospitals are different environments, it may be possible that this has had some impact on the results.

### Psychological Type with Self-Directed Learning Readiness

Three significant correlations were found to exist between scores on the SDLRS and psychological types. Extraverted feeling and SDLRS scores were positively correlated (0.34). Extraverted thinking also had a positive correlation with SDLRS scores (0.31), as did introverted intuitive (0.21).

Herbeson (1990) found that extraversion and intuition were positively correlated with self-directed learning readiness, and that introversion and sensing were negatively correlated with self-directed learning readiness.

### Psychological Type with Continuing Education Activity

Correlational analyses of the eight psychological types with each of the 10 continuing education activities resulted in only one significant result: that of extraverted thinking scores with participation in informal discussion or study groups. Individuals with a dominant psychological type of extraverted thinking have strong principles and ideals, make judgements based on these principles, and will hold their ground if faced with opposition. They are interested in facts and ideas, and value a life ruled by intellectual considerations and conclusions. They would therefore enjoy participating in a group discussion where they could debate their beliefs with others. Such types may even seek out activities of this nature, and this may explain the correlation found here.

### Self-Directed Learning Readiness with Participation in Continuing Education Activities

Five continuing education activities were found to have significant positive correlations with SDLRS scores. The activities were: the number of hours per month spent reading

professional nursing journals, reading journals as a continuing education activity, attending credit courses, watching videos, and using reference texts. Thus the higher the SDLRS score, the more likely the individual was to engage in any of these activities. It would be expected that these are the types of activities that individuals who are inclined to be self-directed would participate in.

### **Summary**

Results of the descriptive statistics provided a picture of the sample population, which in general was similar to other sample populations in recent nursing research in southern Ontario. While the response rate was satisfactory, the sample size was too small for some comparisons to be made (e.g., differences in learning style preference from one clinical area to another). Generalizations must be made with caution. Significant results of the cross-tabulation and correlational analyses were, in some cases, difficult to generalize. Reasons for some of the results could not be substantiated or refuted by other findings in the literature because there have not been studies done on some of the relationships which were investigated in this study. Some of the results suggest trends which may exist within the nursing population, however, further study should be conducted with a larger sample in order to determine whether the results could be replicated. In addition, many of the significant correlations in this study were in fact small numbers (e.g. 0.23). These would then only account for a small (e.g. 4.0 to 4.5%) amount of the variance between the two factors, thus leaving room for other factors (not examined in this study) which may account for more of the variance.

## **CHAPTER SIX: IMPLICATIONS AND RECOMMENDATIONS**

As with any research, a variety of implications and recommendations arise from the results. These are explored in this chapter with the intention of highlighting how the results may be used in practice or in further research by nurses and by those involved with the education of registered nurses.

### **Implications**

The original purpose of this study was to identify several characteristics of registered nurses as well as any relationships which may exist among any of the characteristics with a view to utilizing this information in the preparation of continuing education programs. The descriptive statistics provide an overview of general characteristics of the registered nurse sample population. The cross-tabulations highlight differences between the characteristics of the nurses at the two hospitals used in the study, and the correlations illustrated the relationships among the variables.

In response to the first three research questions, the predominant psychological types of this sample were identified, as were their preferences for learning style, and their readiness for self-directed learning was assessed. The results of the psychological type test produced vastly different and unexpected results of classifications of the nurses. Although the reasons for such an unusual sample were speculated upon in the previous chapter, these results serve to remind us of the importance of accurate assessments rather than making assumptions based on expected norms derived from other research.

By determining the psychological types of a population, numerous people benefit. The individual gains an appreciation and understanding of their own psychological makeup. If the



information is shared, peers and colleagues learn about each other and come to understand each other's differences. This is particularly important for groups of individuals who work closely together, such as nurses in a busy, interactive, and stressful environment such as the emergency department. Interpersonal relations and group dynamics may improve when individuals learn more about themselves and each other. They can understand strengths and weaknesses from a different perspective and can respond appropriately to previously misunderstood means of communication. Nurse managers and nurse educators can benefit from knowing the psychological type of the nurses with whom they work. Such knowledge may be especially useful to them in the areas of planning educational activities.

Similarly, determining one's preferred learning style can assist individuals to recognize how they may optimize their learning potential or recognize why some learning attempts may have been frustrating or unsuccessful in the past. Again, nurse educators, having knowledge of the learning style preferences of the learners they are working with, can use this information to help plan and deliver educational material in order that all participants may relate to the presentation. Individual nurses who become aware of their preferred methods of learning can use the information to help them improve upon their less preferred stages in the learning cycle so that they may benefit from other types of learning situations.

If this information is shared among peers, it may help them understand each other's preferred methods of learning. This can be beneficial in settings where colleagues work closely together and where events change rapidly or require rapid intervention, and may focus on a hands-on approach. Although the results of this research suggest that most nurses use the accommodator or the diverger learning styles, one must recognize that in any group are learners who fall into each of Kolb's (1979) four learning style categories. Therefore even if a

group shares a predominant learning style, awareness of those who differ and how they differ in their learning style may be valuable information which can help the group function optimally.

Nurses who are new to a clinical area may benefit from knowing their preferred learning style. It is common in nursing orientations to include a preceptorship such that the new staff member is paired with an experienced colleague who assists them in learning the requirements of the new position through instruction, demonstration, modelling, support, and feedback. If the preceptor (the "teacher") is aware of the preceptee's (the "learner's") learning style preference, he or she can use this knowledge to enhance the new staff member's learning. For example, if the learner focuses on the concrete experience stage of learning (such as an accommodator would), then the preceptor may choose to demonstrate the functioning of a piece of equipment rather than just discuss its use from a theoretical perspective.

Educators and program planners can use knowledge of self-directed learning readiness to facilitate the development of learning materials or learning activities. For example, if the group demonstrates an above average readiness for self-directed learning as indicated by their scores on the SDLRS, then use of self-directed learning packages and self-paced modules may be a feasible option for delivering new information to this group.

By recognizing and encouraging achievements which are the result of self-directedness, the attitude that self-directed learning is valuable can be fostered. As well, an understanding of self-directed learning and how the environment may influence this can be valuable for educators and administrators.

A number of continuing education activities were positively correlated with SDLRS scores. This suggests that those with a propensity to be self-directed learners may engage in these activities, but leads one to question what the less self-directed learners are doing to

enhance their knowledge. Although it is tempting to encourage nurses to adopt an attitude which values self-directed learning such that they may become more self-directed, we must also recognize that people resist change and therefore bringing about such a change may not be entirely possible. If that is the case, then the learning needs of the less self-directed nurses must still be met. We cannot assume that nurses who do not pursue continuing education do not have learning needs. For these individuals, other-directed activities may be the answer, however, other reasons for their lack of involvement in continuing education must be investigated as well.

In this study, scores on extraverted thinking, extraverted feeling and introverted intuitive psychological type preferences were found to have a positive correlation with SDLRS scores. The literature suggests that individuals with an intuitive type preference are more self-directed, yet these results cannot be ignored. It is possible that these findings are the result of the environment such that other psychological types may become more self-directed in an environment which supports such an attitude and approach to learning, or it may be that previous studies failed to find this relationship. It may also be a result of the types of continuing education activities which were investigated in this study-- perhaps extraverted thinking and feeling types enjoy participating in the activities which were included in the nursing survey. Regardless, this suggests the value of assessing the self-directedness of the individuals in a group of potential learners. Knowledge of their readiness to be self-directed can be applied to program planning and delivery.

### **Recommendations**

A number of recommendations for practice and future research can be made regarding this study. By replicating this study on a larger scale, support for the results could be sought and further relationships may surface. The small sample size in this study could be expanded upon to include several teaching and nonteaching hospitals so that trends could be more clearly identified. A larger sample may more accurately reflect the distribution of psychological types and learning style preferences among the nursing population. Use of a larger sample may also permit comparisons of results between various clinical practice settings. One might expect that nurses working in critical care areas would be more affected by changes in technology and therefore may feel an increased need to learn and participate in continuing education than nurses in other clinical settings. If this were found to be true, one may question whether these nurses scored higher on the SDLRS scale or whether there are certain learning style preferences found in different clinical settings.

This research focused only on registered nurses working in the hospital setting. Future studies could be expanded to include nurses working in a variety of other settings such as doctors' offices, public health, and industry. It would be interesting to determine whether differences exist among these groups for the factors under consideration.

Use of a random sample of nurses from the entire population of nurses in Ontario would perhaps allow for more generalizability of the results. This sample consisted of nurses working only in southern Ontario where it may be assumed that continuing education opportunities are more plentiful and varied than in some northern locations. Results from a large random sample may be useful in planning or developing province-wide continuing education opportunities for nurses.

Further research into the same topics could actually be limited to one or two of the factors investigated here. For example, psychological type and participation in continuing education, or learning style and self-directed learning readiness could be investigated. By using fewer instruments, the response rate may increase as well.

Concern about the reliability and validity of the Kolb Learning Style Inventory (LSI) and Guglielmino's SDLRS suggest that further research would be valuable with these tools to determine if they are the most appropriate ones to use to study these factors. The lack of significant relationships among some variables in this research suggests that these instruments may be questioned. Again, a larger sample and further study with these tools may dispel some concerns. Additionally, one may wish to use the newer version of the Kolb LSI (developed in 1985).

The overall lack of involvement in many of the continuing education activities is of concern. Nurses must stay up-to-date to practice competently, and if they are not participating in continuing education then it begs the question "Why not?". The issue of competence is extremely important in today's society of quality assurance and customer satisfaction. Although much research has been done regarding deterrents to participating in continuing education, perhaps these issues must be addressed concurrently when investigating participation. Information about factors which motivate and which deter nurses from participating can be combined with information about self-directed learning readiness, learning style preferences, and psychological type of nurses to plan, deliver and enhance continuing education.

A different approach to investigating this topic may involve the use of qualitative research techniques. Focus groups of a number of nurses could be interviewed to determine

what types of continuing education activities they are involved in, why, to what extent, and what may encourage or discourage them from participating. As well, their learning style preferences, psychological types, and readiness for self-directed learning could be assessed. Individual in-depth, structured interviews could also be conducted with a small sample of nurses in order to identify the same characteristics in greater detail. Such an approach may identify other factors worthy of investigation or may lead to a better understanding of some of the results obtained in the larger scale quantitative study.

Results of this and any further related research may be of interest to other health care professionals as well as other groups, such as those in business. These groups share similarities to nurses in that they work closely together, must stay abreast of changes in their field, and would benefit from an increased understanding of each other. Therefore trends identified here and in future research of this nature should be considered by those in other professions who are investigating continuing education among their members.

### **Conclusions**

The results of this study highlight the importance of obtaining information about the characteristics of learners. Each of the factors considered in this study sheds light on the population of nurses as learners. For educators, administrators, and others working with this group, a knowledge of characteristics such as learning style preference and psychological type facilitates planning and delivery of educational opportunities, and may lead to enhanced group functioning. The value of self-directed learning in the pursuit of continuing education is evident and should therefore be encouraged not only within the workplace, but even prior to that-- in the schools of nursing.

Further research pertaining to any or all of the factors investigated in this study will continue to advance our knowledge of characteristics of registered nurses and may be useful for facilitating their continued learning.

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**Appendix A**

October 16, 1995

Dear Nursing Unit Manager:

I am writing to introduce myself and to ask for your assistance.

My name is Karen Gehan and I am an RN in the ICU at . I am working on my Master of Education thesis at Brock University. My research is on factors associated with registered nurses' participation in continuing education. I wish to randomly survey 20 nurses in each of a variety of clinical areas. The responses and identities of respondents will remain anonymous.

I have discussed this project with and I am awaiting final approval from the ethics committee before the data collection commences. Once this has been obtained I will forward to you 20 survey packages.

This is where your assistance will be appreciated. Please randomly select 20 nurses on your staff and ask for their cooperation in completing a survey. Each survey will instruct people to return it to me via inter-department mail.

I will contact you in the near future. Thank you in advance for your valuable support.

Sincerely,

Karen A. Gehan, R.N.  
M.Ed. Candidate

October , 1995

Dear Nursing Unit Manager:

In my letter dated < > I introduced my research topic for the M.Ed. degree at Brock University. I have obtained formal consent from the Ethics Committee and I wish to proceed with the collection of data.

I have enclosed 20 survey packages, each containing a cover letter to the nurse, the surveys to be completed (four), and a self-addressed envelope in which to return the completed surveys.

For your information, each package contains a copy of the Kolb Learning Style Inventory, the PET Type Check, the Self-Directed Learning Readiness Scale and a demographic questionnaire.

I would greatly appreciate it if you could randomly distribute these packages to 20 of your staff members and encourage them to complete them and return them to me by November 15.

Upon completion of my research I will gladly share my results with you. Please let me know if you are interested.

Your assistance and cooperation with my research is very much appreciated. Questions are always welcome. I can be reached at home at (905) 988-5628 or in the ICU at ext.

Sincerely,

Karen A. Gehan, R.N.  
M.Ed. Candidate

Karen A. Gehan, 259 Vansickle Rd., St. Catharines, ON. L2S 2S9  
Res: (905) 988-5628

October 31, 1995

Dear

My name is Karen Gehan and I am a part-time-on-call RN in the ICU at . . . I am working on my Master of Education thesis at Brock University. My research is on factors associated with Registered Nurses' participation in continuing education. I wish to randomly survey 20 Registered Nurses in each of a variety of clinical areas. The responses and identities of respondents will remain anonymous.

I have discussed this project with and and I have received their support and approval to proceed with the data collection.

This is where your assistance will be appreciated. This letter covers a package of 20 surveys. Please randomly select 20 Registered Nurses on your staff and ask for their cooperation in completing a survey. Each survey will instruct the individual to return it to me via inter-departmental mail and a self-addressed envelope is provided.

Thank you in advance for your valuable support.

Sincerely,

Karen A. Gehan, R.N.  
M.Ed. Candidate

Karen A. Gehan, 259 Vansickle Rd., St. Catharines, ON L2S 2S9  
Res: (905) 988-5628

November 2, 1995

Dear Colleague,

My name is Karen Gehan and I am an RN in the ICU at . I am also a student in the Master of Education program at Brock University. My thesis research is on factors related to continuing education of nurses, a topic which will be increasingly significant in our future as health care professionals.

I have selected you to complete four questionnaires regarding the characteristics of Registered Nurses that may be pertinent to continuing education in nursing. I value your cooperation as the data I accumulate from your replies will play a substantial role in my research.

I am sure that you will find the surveys to be interesting and straightforward. I have estimated that it will take you 20-30 minutes to complete the package. I would greatly appreciate if you could complete the questionnaires and return the package to me promptly by November 17. Please use the enclosed self-addressed envelope to return the package to me via inter-departmental mail.

Your responses will remain completely anonymous. Please do not write your name on any of the pages. However, if you would like feedback, please make note of the code number on your package and contact me at the numbers below in the spring of 1996.

I welcome any questions. You may call me at (905) 988-5628, collect if necessary, or I may be reached at ext. in the ICU.

Sincerely,

Karen A. Gehan, R.N.  
M.Ed. Candidate

Karen A. Gehan, 259 Vansickle Rd., St. Catharines, ON L2S 2S9  
Res: (905) 988-5628

November 2, 1995

Dear Colleague,

My name is Karen Gehan and I am an RN in the ICU at Brock University. I am also a student in the Master of Education program at Brock University. My thesis research is on factors related to continuing education of nurses, a topic which will be increasingly significant in our future as health care professionals.

I have selected you to complete four questionnaires regarding the characteristics of Registered Nurses that may be pertinent to continuing education in nursing. I value your cooperation as the data I accumulate from your replies will play a substantial role in my research.

I am sure that you will find the surveys to be interesting and straightforward. I have estimated that it will take you 20-30 minutes to complete the package. I would greatly appreciate if you could complete the questionnaires and return the package to me promptly by November 17. Please use the enclosed self-addressed envelope to return the package to me via inter-departmental mail.

Your responses will remain completely anonymous. Please do not write your name on any of the pages. However, if you would like feedback, please make note of the code number on your package and contact me at the number below in the spring of 1996.

I welcome any questions. You may call me at (905) 988-5628.

Sincerely,

Karen A. Gehan, R.N.  
M.Ed. Candidate



13. Current area of clinical practice
- ☐ Medical/Surgical
  - ☐ ICU
  - ☐ Coronary Care
  - ☐ ER
  - ☐ OR/Recovery
  - ☐ Psychiatry
  - ☐ Pediatric
  - ☐ Chronic/LTC/Geriatric
  - ☐ Obstetrics
14. Number of years experience in the area of practice defined in question #13
- \_\_\_\_\_
15. Professional organizations of which you are a member - (e.g. ONA, RNAO and its interest groups, CACCN)
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
16. Nursing journals to which you subscribe - (e.g. Nursing'95, AJN, The Canadian Nurse)
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
17. Number of hours per month reading journals \_\_\_\_\_
18. In the past year which of the following types of Continuing Education have you participated in and to what extent?

Continuing Education Activity

How often in the past year?

- ☐ Reading professional journals
- ☐ Inservices
- ☐ credit courses
- ☐ non-credit courses
- ☐ videos
- ☐ workshops
- ☐ conferences
- ☐ reference texts
- ☐ informal discussion/study groups
- ☐ other (specify)

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**Thank you for your cooperation and support!**